NOKIA
CONSUMER ELECTRONICS

Ersatzteile
Replacement parts
Pezzi di ricambio, mobile ed accessori

TV
051
1991

NOKIA
UNTERHALTUNGSELEKTRONIK GmbH
Service
D-7530 Pforzheim

Service-Manual

NOKIA

4223 OSCAR
Ident-No. 5538 39 30

4223 PAL SECAM
Ident-No. 5538 32 70

5123 OSCAR
Ident-No. 5538 39 40

5123 PAL SECAM
Ident-No. 5538 32 90

5523 OSCAR
Ident-No. 5538 39 60

5523 PAL SECAM
Ident-No. 5538 39 50

SALORA

3321 U
Ident-No. 5538 13 60

Zur Reparatur sind folgende Unterlagen erforderlich:
For service, the following circuit documents are required:
Per la riparazione sono necessari i sequenti documenti:

A29

Chassis A3 – A14

Ersatzteile
Replacement parts
Ricambi

6611 76 60

Achtung! Bei Reparaturen gültige Sicherheitsvorschriften beachten.
Röntgenverordnung: Die in der Röntgenverordnung festgelegte Ortsdosisleistung ist bei diesem Gerät durch die Bildröhrentype und die maximal zulässige Hochspannung gewährleistet. Die Hochspannung darf maximal 22 kV betragen. Die Hochspannung liegt im zulässigen Bereich, wenn die Betriebsspannung der Horizontal-Ablenkstufe bei minimalem Strahlstrom 130 V ± 1 V beträgt. Bei Reparaturen ist die Spannung zu überprüfen und gegebenenfalls mit VR 551 auf Sollwert einzustellen.

Warning! For repair works adhere to existing safety regulations.
X-ray regulations: The picture tube type and the maximum permissible high-voltage ensure that the X-ray intensity within the set remains far below the permissible value. The high-voltage must not exceed 22 kV. The high voltage is within the permissible limits when the operating voltage of the horizontal deflection stage equals 130 V ± 1 V at minimum beam current. Following servicing, check and adjust this voltage to the nominal value with VR 551.

Attenzione! Per riparazione fare attenzione alle valevoli prescrizioni di sicurezza.
Regolamento raggi X: La potenza prevista dall disciplina raggi X per questo genere di apparecchio viene garantita dal tipo di cinescopio e dalla tensione massima consentita. La tensione massima deve comportare 22 kV max. La tensione massima si trova nei limiti consentiti se la tensione di esercizio della fase terminale-orizzontale comporta a corrente minima catodica 130 V ± 1 V. Controllare, in caso di riparazione, la tensione, e, all'occorrenza, mettere a punto, a valore nominale, mediante VR 551.

Bei Nachbestellungen von Manualen, Gerätetyp und Geräte-Ident-Nummer angeben.
When re-ordering manuals, please quote the model name and part number.
Per riordinare i manuali, indicare il modello dell'apparecchio ed il numero categorico.

6611 76 59 (990) S

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Ersatzteile / Replacement parts list / Elenco delle parti di ricambio

Bei Ersatzteilbestellungen neben dem Gegenstand bitte unbedingt die Bestellnummer und bei Baugruppen (Modulen) auch die Baugruppennummer angeben !
When ordering spares please quote item and order number. When ordering (sub-)assemblies (modules), give the assembly number in addition !
Nelle ordinazioni di pezzi di ricambio è assolutamente indispensabile indicare l'oggetto ed il numero di riferimento e, nel caso di gruppi costruttivi (moduli), anche il numero del modulo !

! **Sicherheitsbauteil** im Sinne der Sicherheitsbestimmungen. Diese Teile dürfen nur durch Originalteile ersetzt werden.
Safety components in accordance with existing regulations. These components must only be replaced by original component parts.
Componenti di sicurezza ai sensi del regolamento di sicurezza. Queste componenti devono venir sostituite unicamente con parti originali.

Gegenstand Item Ricambi		Bestell-Nr. Order no. No. di rif.
SALORA 3321 U / 5538 13 60		
Gehäuse u. Zubehör/Case and accessories/ Scatola e accessori		
FB-Sender/Remote control/Trasmettitore IR		5652 21 94
Gehäuse/Case/Scatola		6131 90 13
Rückwand/Rear cover/Muro posteriore		6214 04 26
Klebeschild/Gummed label/Etichetta adesivo		6466 03 42
Folie/Foil/Foglia SYMBOL		6466 03 14
Abdeckung/Grille/Coperchio		8681 48 70
Netztaste/Mains pushbutton/Interrutore generale		6318 42 86
Feder/Spring/Molla		4543 36 67
Taste/Pushbutton/Interrutore		6318 42 85
Taste/Pushbutton/Interrutore		6318 42 94
Stabantenne/Antenna		4471 90 41
Antennenstecker/Antennaplug/Spina di antanna		4131 42 34
Chassisplatte/Chassis board/Piastra chassis		6913 11 04
Bildröhrenplatte/Picture tube board/ Piastra di cinescopio		6913 13 59
A 101	Tuner-Leiterplatte/Tuner board/ Piastra di sintonizzatore	6913 13 58
A 701	Vorverstärker-Leiterplatte/Preamplifier board/Piastra di preamplificatore	6913 19 11
F 501	Sicherung/Fuse/Fusibili 2,5A-250V	4375 20 31
K 171	Kopfhörerbuchse/Headphone socket/ Presa di ricevitore a cuffia	4145 09 41
K 601	Bildröhrensockel/Picture tube socket/ Zoccolo del cinescopio	4156 20 18
K 801	Buchse/Socket/Presa	4144 83 33
K 821	Buchse/Socket/Presa	4144 83 34
L 901	Entmagn.-Spule/Degaussing coil/ Bobina di smagnetizzazione	4588 35 12
L 902	Ablenkeinheit/Deflection unit/ Unita di deviazione	4516 10 91
PS 501	Heißleiter/Thermistor/Termistore	3174 91 64
Q 901	Bildröhre/Picture tube/Cinescopio	4362 15 48
SP 901	Lautsprecher/Loudspeaker/Altoparlante	4311 94 97
TH 710	Heißleiter/Thermistor/Termistore	3614 46 86
W 901	Netzkabel/Mains cable/Cavo per rete elettrica	4131 42 33
W 902	Feder für Erdung/Tension-spring/ Molla di terra	7358 47 08
NOKIA 4223 OS / 5538 39 30		
NOKIA 4223 PS / 5538 32 70		
Gehäuse u. Zubehör/Case and accessories/ Scatola e accessori		
FB-Sender/Remote control/Trasmettitore IR		5652 21 94
Gehäuse/Case/Scatola		6131 90 12
Rückwand/Rear cover/Muro posteriore		6134 51 66
Fuß/Foot/Piede		6273 40 25
Klebeschild/Gummed label/Etichetta adesivo		6466 03 35
Klebeschild/Gummed label/Etichetta adesivo		6466 03 36
Klebeschild/Gummed label/Etichetta adesivo		6466 03 37
Folie/Foil/Foglia OSCAR		6466 03 14
Folie/Foil/Foglia PAL/SECAM		6466 03 13
Abdeckung/Grille/Coperchio		8681 48 59
Klappe/Lid/Cerniera		6134 51 65
Netztaste/Mains pushbutton/Interrutore generale		6318 45 54
Feder/Spring/Molla		7358 47 07
Taste/Pushbutton/Interrutore		6318 45 55
Stabantenne/Antenna		4471 90 41
Antennenstecker/Antennaplug/Spina di antenna		4131 42 34
Chassisplatte/Chassis board/Piastra chassis		
- OSCAR-Geräte		6913 12 74
- PAL/SECAM-Geräte		6913 12 75
Bildröhrenplatte/Picture tube board/ Piastra di cinescopio		6913 12 73
A 101	Tuner-Leiterplatte/Tuner board/ Piastra di sintonizzatore	6913 15 16
A 701	Vorverstärker-Leiterplatte/Preamplifier board/Piastra di preamplificatore	6913 19 11
F 501	Sicherung/Fuse/Fusibili 2,5A-250V	4375 20 31
K 171	Kopfhörerbuchse/Headphone socket/Presa di ricevitore a cuffia	4145 09 41
K 601	Bildröhrensockel/Picture tube socket/ Zoccolo del cinescopio	4131 42 41
K 801	Buchse/Socket/Presa	4144 83 33
K 821	Buchse/Socket/Presa	4144 83 34
L 901	Entmagn.-Spule/Degaussing coil/ Bobina di smagnetizzazione	4588 88 08
NOKIA 5123 OS / 5538 39 40		
NOKIA 5123 PS / 5538 32 90		
Gehäuse u. Zubehör/Case and accessories/ Scatola e accessori		
FB-Sender/Remote control/Trasmettitore IR		5652 21 94
Gehäuse/Case/Scatola		6131 90 17
Rückwand/Rear cover/Muro posteriore		6134 51 76
Klebeschild/Gummed label/Etichetta adesivo		
- OSCAR-Geräte		6466 03 50
Klebeschild/Gummed label/Etichetta adesivo		6466 03 45
Klebeschild/Gummed label/Etichetta adesivo		6466 03 51
Folie/Foil/Foglia SYMBOL		6466 03 43
Folie/Foil/Foglia SYMBOL		6466 03 44
Abdeckung/Grille/Coperchio		8681 48 71
Klappe/Lid/Cerniera		6134 51 75
Netztaste/Mains pushbutton/Interrutore generale		6318 45 64
Feder/Spring/Molla		7358 42 53
Taste/Pushbutton/Interrutore		6318 45 65
Fuß/Foot/Piede		6273 40 49
Chassisplatte/Chassis board/Piastra chassis		
- OSCAR-Geräte		6913 11 62
- PAL/SECAM-Geräte		6913 11 60
Bildröhrenplatte/Picture tube board/Piastra di cinescopio		
- OSCAR-Geräte		6913 11 61
- PAL/SECAM-Geräte		6913 11 59
Lautsprechergrill/Loudspeaker grille/Coperchio dell'altoparlante		6416 99 07
A 101	Tuner-Leiterplatte/Tuner board/Piastra di sintonizzatore	6913 15 16
A 701	Ververstärker-Leiterplatte/Preamplifier board/Piastra di preamplificatore	6913 19 11
F 501	Sicherung/Fuse/Fusibili 2,5A-250V	4375 20 31
K 171	Kopfhörerbuchse/Headphone socket/Presa di ricevitore a cuffia	4145 09 41
K 601	Bildröhrensockel/Picture tube socket/ Zoccolo del cinescopio	4131 42 41
K 801	Buchse/Socket/Presa	4144 83 33
K 821	Buchse/Socket/Presa	4144 83 34
L 901	Entmagn.-Spule/Degaussing coil/ Bobina di smagnetizzazione	4588 88 08

Ersatzteile / Replacement parts list / Elenco delle parti di ricambio

Gegenstand Item Ricambi		Bestell.-Nr. Order no. No. di rif.
L 902	Ablenkeinheit/Deflection unit/ Unita di deviazione	4516 88 13
PS 501	Heißleiter/Thermistor/Termistore	3174 91 64
Q 901	Bildröhre/Picture tube/Cinescopio	4362 90 07
SP 901	Lautsprecher/Loudspeaker/Altoparlante	4311 95 14
TH 710	Heißleiter/Thermistor/Termistore	3614 46 86
W 901	Netzkabel/Mains cable/Cavo per rete elettrica	4147 80 26
W 902	Stecker/Plug/Spina	4135 88 26
NOKIA 5523 OS / 5538 39 60		
NOKIA 5523 PS / 5538 39 50		
Gehäuse u. Zubehör/Case and accessories/ Scatola e accessori		
FB-Sender/Remote control/Trasmettitore IR		5652 21 94
Gehäuse/Case/Scatola		6131 90 14
Rückwand/Rear cover/Muro posteriore		6134 51 76
Fuß/Foot/Piede		6273 40 49
Klebeschild/Gummed label/Etichetta adesivo		6466 03 45
Klebeschild/Gummed label/Etichetta adesivo		6466 03 46
Klebeschild/Gummed label/Etichetta adesivo		6466 03 47
Folie/Foil/Foglia SYMBOL		6466 03 43
Folie/Foil/Foglia SYMBOL		6466 03 44
Abdeckung/Grille/Coperchio		8681 48 71
Klappe/Lid/Cerniera		6134 51 75
Lautsprechergrill/Loudspeaker grille/ Coperchio dell'altoparlante		6416 99 07
Netztaste/Mains pushbutton/Interrutore generale		6318 45 64
Feder/Spring/Molla		7358 42 53
Taste/Pushbutton/Interrutore		6318 45 65
Chassisplatte/Chassis board/Piastra chassis		
- OSCAR-Geräte		6913 11 20
- PAL/SECAM-Geräte		6913 11 05
Bildröhrenplatte/Picture tube board/Piastra di cinescopio		
- OSCAR-Geräte		6913 11 21
- PAL/SECAM-Geräte		6913 11 06
A 101	Tuner-Leiterplatte/Tuner board/ Piastra di sintonizzatore	6913 15 16
A 701	Vorverstärker-Leiterplatte/Preamplifier board/Piastra di preamplificatore	6913 19 11
F 501	Sicherung/Fuse/Fusibili 2,5A-250V	4375 20 31
K 171	Kopfhörerbuchse/Headphone socket/	4145 09 41
K 601	Bildröhrensockel/Picture tube socket/ Zoccolo del cinescopio	4132 41 31
K 801	Buchse/Socket/Presa	4144 83 33
K 821	Buchse/Socket/Presa	4144 83 34
L 901	Entmagn.-Spule/Degaussing coil/ Bobina di smagnetizzazione	4588 88 07
L 902	Ablenkeinheit/Defelction unit/ Unita di deviazione	4516 88 12
PS 501	Heißleiter/Thermistor/Termistore	3174 91 64
Q 901	Bildröhre/Picture tube/Cinescopio	4362 90 03
SP 901	Lautsprecher/Loudspeaker/Altoparlante	4311 95 14
TH 710	Heißleiter/Thermistor/Termistore	3614 46 86
W 901	Netzkabel/Mains cable/Cavo per rete elettrica	4147 80 26
W 902	Stecker/Plug/Spina	4135 88 25
SALORA 3321 U / 5538 13 60		
NOKIA 4223 OS / 5538 39 30		
NOKIA 4223 PS / 5538 32 70		
NOKIA 5123 OS / 5538 39 40		
NOKIA 5123 PS / 5538 32 90		
NOKIA 5523 OS / 5538 39 60		
NOKIA 5523 PS / 5538 39 50		
Bauteile/Components/Componenti		
Q 101	2 SC 2570 A	3614 44 99
Q 110	2 SD 400 DMP	3614 46 66
Q 112/511/721	2 SA 1015 GR	3614 39 73
Q 181/301/341/351/357/ 552/553/701/724/731/ 732/733/742/751/762/ 785/792/802/810	2 SC 1740 Q	3614 37 81

Gegenstand Item Ricambi		Bestell-Nr. Order no. No. di rif.
Q 241	2 SA 10150	3614 46 68
Q 431	2 SC 23830	3614 46 81
Q 432		
- 3321	2 SD 1649 CTVYB	3614 45 15
- 4223/5123	2 SD 1650 CTVYB	3614 76 14
- 5523	2 SD 1651	3614 76 20
Q 512	2 SC 3807 RCTVYA	3614 45 11
Q 513	2 SD 1710 CTVYB	3614 45 12
Q 551/554	2 SB 764 E	3614 43 16
Q 601/611/621/641		
- 3321/4223	2 SC 2228 D	3614 45 02
- 5123/5523	2 SC 2621 D	3614 76 21
Q 741	2 SC 2216	3614 52 63
Q 761	2 SC 3114 R	3614 46 82
IC 101		
- 3321/4223 OS/5123 OS/5523 OS	LA 7680	3771 61 35
- 4223 PS/5123 PS/5523 PS	LA 7681	3771 61 36
IC 171	AN 5265	3771 57 39
IC 301	AN 5635 N-A	3771 57 46
IC 351	LA 7910	3771 46 84
IC 451	LA 7837	3771 61 37
IC 551	AN 78M12 LB	3771 57 41
IC 701	M 34300N4 628 SP	3771 64 33
IC 710	LA 7910	3771 46 84
IC 791	HZT 33	3771 57 45
IC 801	LC 4066 B	3771 61 42
IC	UPD 4066 BC	3771 61 44
C 101	47µF 16V	3422 85 42
C 102/103/104/109/351/352	4,7µF 25V	3422 86 88
C 105/115/265/425/782/783	0,47µF 50V	3422 85 56
C 114/188/211/401	2,2µF 50V	3422 85 09
C 117	330µF 16V	3422 99 12
C 127/704/801/810	47µF 16V	3422 85 42
C 161/162/163/182/183/ 201/234/321/322/325/ 326/762/764/766/768	10µF 16V	3422 85 30
C 171/222/421	100µF 16V	3422 28 29
C 172/312/318/319/821	1µF 50V	3422 86 94
C 181	100µF 25V	3422 86 34
C 185/565	470µF 25V	3422 43 16
C 187	22µF 16V	3422 85 46
C 2A1	1µF 50V	3422 86 80
C 231	10µF 25V	3422 86 02
C 232		
- 3321/4223	1µF 50V	3422 86 94
- 5123/5523	0,47µF 50V	3422 85 56
C 233		
- 3321/4223	10µF 16V	3422 85 30
- 5123/5523	4,7µF 50V	3422 85 22
C 262	1µF 50V	3422 86 80
C 290/451	470µF 16V	3421 08 86
C 301	330µF 16V	3422 99 12
C 423/785	4,7µF 50V	3422 85 22
C 432	1000pF 500V !	3385 90 09
C 433	3900pF 500V !	3385 90 10
C 434	47µF 35V	3422 86 18
C 435		
- 3321	4700pF 1500V !	3422 01 19
- 4223/5123	6500pF 1500V	3422 01 25
- 5523	7500pF 1500V	3422 01 40
C 436		
- 5123	330pF 3000V	3385 90 17
- 5523	470nF 3000V	3385 90 15
C 437	0,47µF 50V !	3422 01 20
C 443	4,7µF	3426 09 23
C 452	2200µF 35V	3422 87 14
C 456	100µF 35V	3422 86 48
C 458	10pF 500V	3385 90 16
C 461	10µF 50V	3422 86 19
C 462/564	1000µF 50V	3422 86 22
C 493		
- 4223 PS/5523 PS	3,3µF 25V	3422 85 41
- 5123PS	3,3µF 25V	3422 01 44

Ersatzt

Gegenst Item Ricambi
C 501/502
- 3321
- 4223/512
C 503/504
C 507
- 3321/422
- 5123/552
C 516
C 518
- 3321/422
- 5123/552
C 531
- 3321
- 4223/512
C 532
C 551
C 552
C 554
C 561
C 562
- 3321
- 4223/512
C 563
C 631/632
C 633
- 4223
- 5123/552
C 700
C 701
- 3321/OS
- PAL/SEC
C 760
- 4223 PS
- 5123/552
R 113
R 171
R 434
- 3321/512
- 4223/552
R 435
- 3321/422
- 5123
- 5523
R 443
- 3321
- 4223
R 451
R 467
- 3321
- 4223/512
R 481
- 3321
- 4223
- 5123/552
R 502
- 3321/422
- 5123/552
R 524
- 3321/422
- 5123/552
R 525
R 531/532
R 550
R 551
R 557
R 560
- 5123
- 5523
R 561
R 562
R 563
- 4223
- 3321/512
- 5123 PS
R 569
R 601/611/
R 701
- 3321/422
- 5123/552
R 795

Ersatzteile / Replacement parts list / Elenco delle parti di ricambio

Gegenstand Item Ricambi			Best.-Nr. Order no. No. di rif.
C 501/502			
- **3321**	0,22µF 250V	!	3422 01 21
- **4223/5123/5523**	0,1µF 250V	!	3422 01 27
C 503/504/506	1000pF 1000V		3385 90 08
C 507			
- **3321/4223**	100µF 400V		3422 99 82
- **5123/5523**	100µF 400V		3422 01 41
C 516	680pF 2000V		3422 01 28
C 518			
- **3321/4223**	470pF 1000V		3422 01 34
- **5123/5523**	1000pF 1000V		3385 90 08
C 531			
- **3321**	470pF 400V	!	3422 01 22
- **4223/5123/5523**	2200pF 400V	!	3422 01 23
C 532	470pF 400V	!	3422 01 22
C 551	470pF 2000V		3422 01 30
C 552	220pF 2000V		3422 01 32
C 554	470pF 1000V		3422 01 34
C 561	220µF 160V		3422 01 36
C 562			
- **3321**	10µF 160V		3422 01 39
- **4223/5123/5523**	22µF 250V		3422 01 37
C 563	330µF 35V		3422 01 38
C 631/632	1000pF 2000V		3385 90 07
C 633			
- **4223**	1000pF 1000V		3385 90 08
- **5123/5523**	1000pF 2000V		3385 90 07
C 700	100µF 10V		3422 85 38
C 701			
- **3321/OSCAR-Geräte**	100µF 10V		3422 85 38
- **PAL/SECAM-Geräte**	330µF 10V		3422 24 63
C 760			
- **4223 PS**	10µF 16V		3422 85 30
- **5123/5523**	1µF 50V		3422 86 94
R 113	100 Ohm 1W		3151 83 76
R 171	33 Ohm 0,5W	!	3151 83 06
R 434			
- **3321/5123**	270 Ohm 2W		3151 83 87
- **4223/5523**	390 Ohm 2W		3151 83 77
R 435			
- **3321/4223**	12 K-Ohm 6W		3151 83 67
- **5123**	10 Ohm 6W		3151 83 94
- **5523**	8,2 K-Ohm 0,16W		3151 83 92
R 443			
- **3321**	1 K-Ohm 1W		3151 83 79
- **4223**	470 Ohm 1W		3151 83 78
R 451	15 Ohm 0,5W	!	3151 83 29
R 467			
- **3321**	1,5 K-Ohm 1W		3151 83 88
- **4223/5123/5523**	1 K-Ohm 1W		3151 83 79
R 481			
- **3321**	0,6 Ohm 1W		3151 83 89
- **4223**	0,3 Ohm 1W		3151 83 80
- **5123/5523**	1,2 Ohm 1W		3151 80 10
R 502			
- **3321/4223**	3,9 K-Ohm 6W		3151 83 63
- **5123/5523**	3,9 K-Ohm 6W		3151 80 11
R 524			
- **3321/4223**	82 Ohm 2W		3151 83 64
- **5123/5523**	68 Ohm 2W		6157 32 32
R 525	68 Ohm 2W		6157 32 32
R 531/532	5,6 M-Ohm 0,5W	!	3151 83 65
R 550	4,7 Ohm 0,5W	!	3151 83 30
R 551	22 K-Ohm 2W		3151 83 81
R 557	10 Ohm 1W		3151 83 90
R 560			
- **5123**	1,5 K-Ohm 1W		3151 83 96
- **5523**	1,5 K-Ohm 1W		3151 83 88
R 561	2,2 Ohm 2W		3151 83 91
R 562	6,8 Ohm 1W	!	3151 83 31
R 563			
- **4223**	56 Ohm 2W		3151 83 82
- **3321/5123 OS/5523**	82 Ohm 2W		3151 83 64
- **5123 PS**	27 Ohm 2W		3151 83 97
R 569	4,7 Ohm 1W	!	3151 83 32
R 601/611/621	12 K-Ohm 2W		3614 76 13
R 701			
- **3321/4223**	150 Ohm 2W		3151 83 84
- **5123/5523**	180 Ohm 2W		3151 80 12
R 795	10 K-Ohm 2W		3151 83 85

Gegenstand Item Ricambi			Best.-Nr. Order no. No. di rif.
VR 101	10 K-Ohm		3112 97 85
VR 121	1 K-Ohm		3112 98 31
VR 211/451	50 K-Ohm		3112 98 33
VR 281	1 K-Ohm		3112 98 32
VR 301	2 K-Ohm		3112 98 34
VR 411	20 K-Ohm		3112 97 89
VR 551	2 K-Ohm		3112 98 34
VR 601/611/621			
- **3321**			3112 98 40
- **4223/5123/5523**	5 K-Ohm		3112 97 83
VR 602/612			
- **3321**			3112 98 41
- **4223/5123/5523**	500 Ohm		3112 97 84
VR 710	3 K-Ohm		3112 98 39
T 101	Filter/Filtro		4552 73 32
T 102			4552 73 33
T 103			4552 75 23
T 104			4552 69 41
T 121			4552 73 35
T 131			4552 73 37
T 281			4552 73 38
T 301	Spule/Coil/Bobina		4543 33 47
T 302/303/304			4543 33 15
T 431	Filter/Filtro		4552 73 40
T 471 Hor.-Ausg.-Transf./Line transformer/Trasf. di uscita orrizzontale			
- **3321/4223**			4515 88 15
- **5123**			4511 34 77
- **5523**			4511 34 74
T 511			
- **3321/4223**	Filter/Filtro		4552 75 30
- **5123/5523** Netztrafo/Power supply transf./Trasf. di rete			4511 34 75
L 121/131/161/303/305	Spule/Coil/Bobina		4543 36 71
L 141			
- **3321**			4543 38 46
- **4223/5123/5523**			4543 36 71
L 191/192			4543 36 76
L 201 Verz.-Leitg./Delay line/Linea di ritardo			
- **OSCAR-Geräte**			4342 10 10
- **PAL/SECAM-Geräte**			4342 10 24
L 211	Spule/Coil/Bobina		4543 33 15
L 221			4543 33 12
L 251			4543 36 72
L 281			4543 36 73
L 282 Verz.-Leitg./Delay line/Linea di ritardo			4543 10 23
L 283	Spule/Coil/Bobina		4543 36 74
L 302			4543 36 77
L 304			4543 36 78
L 441			
- **5123**			4543 38 80
- **5523**			4543 38 66
L 442			4543 38 67
L 451			4543 36 75
L 501	Filter/Filtro		4552 75 33
L 502			
- **4223**			4552 69 43
- **3321/5123/5523**			4552 73 42
L 503			
- **3321/4223**			4552 73 42
- **5123/5523**			4552 69 43
L 511			4552 69 47
L 633	Spule/Coil/Bobina		4543 36 76
L 700			4543 33 12
L 701			
- **3321/4223**			4552 75 34
- **5123/5523**			4543 33 22
L 781			4552 75 35
L 821			4543 33 12
D 110/411	EQA 02-10 A		3656 33 48
D 231/242/243/244/255/301/ 334/353/492/493/494/495/ 514/516/518/562/702/711/ 712/731/741/781/792/801	DS 442 X		3656 27 86
D 241/341/342/343	EQA 03-11 A		3656 31 98
D 302	188 TV-M		3656 33 52
D 441			
- **3321/4223**	ERB 43-04		3656 33 54
- **5123/5523**	ERC 05-10 B		3656 33 60

Gegenstand Item Ricambi		Best.-Nr. Order no. No. di rif.
D 451	EM 01 Z	3656 31 86
D 452/554	EU 2 Z	3656 30 39
D 454	1 Z 75	3656 34 98
D 491/701	EQA 02-05 D	3656 31 95
D 503/504/506	TVR 4 N,X	3656 31 88
D 505		
- **3321**	ERC 05-10 B	3656 33 60
- **4223/5123/5523**	TVR 4 N,X	3656 31 88
D 515	PC 113 B	3656 32 02
D 517/553/555	ES 1	3656 31 90
D 519	EQA 0208 A	3656 35 19
D 551	EU 2 A	3656 33 64
D 552		
- **4223**	ERA 21-06	3656 35 18
- **5123/5523**	EU 1 C	3656 35 30
D 561	EQA 02-06 E	3656 31 89
D 704		
- **3321**	SLP 177 B-60	3681 17 90
- **4223/5123/5523**	SLP 1818 51	3681 18 19
D 721	RD 3,6 EL	3656 31 96
SW 251/451 Schalter/Switch/Interruttore		4112 98 55
SW 501		4112 98 52
SW 701/702/703/704		4112 97 42
SW 705/706/707/708/709/710		4112 97 41
SW 711/712/713		4112 97 45

Gegenstand Item Ricambi		Best.-Nr. Order no. No. di rif.
X 101	Filter/Filtro	
- **3321**		4552 69 30
- **4223/5123/5523**		4552 75 36
X 121		
- **3321**		4552 69 29
- **4223/5123/5523**		4552 73 44
X 122		4552 73 45
X 143		
- **3321**		4552 69 18
- **4223/5123/5523**		4552 75 37
X 161		
- **3321**		4552 69 19
- **4223 OS**		4552 69 45
- **4223 PS/5123/5523**		4552 75 28
X 201	Quarz/Quartz/Quarzo	4421 23 45
X 251	Filter/Filtro	4552 73 48
X 421		4552 75 25
X 701		4552 75 26

Wichtiger Hinweis

Wenn IC 701 (M34300N4–622SP) ersetzt wird, muß dieses Bauteil auf folgende Weise initialisiert werden:

1. Fernseher ausschalten.
2. IC 701 ersetzen.
3. Fernseher anschalten.
4. Programmposition „1" direkt mit der Fernbedienung anwählen.
5. Taste „Special" (der Fernbedienung) länger als 2,5 Sekunden gedrückt halten und danach Spezialcode „01" mit dem Programmwahlschalter der Fernbedienung wählen.
6. Speichertaste am Fernseher drücken.

Hinweis: Wenn dieses Verfahren nicht richtig ausgeführt wird, muß der Fernseher ausgeschaltet und Schritt 3 bis 6 wiederholt werden.

Die Initialisierung ist nun abgeschlossen.

Als nächstes müssen Sie die Kanäle einstellen und ihnen Fernsehprogramme zuordnen. → Einzelheiten entnehmen Sie bitte dem Bedienungshandbuch des Fernsehgerätes.

Important note

When IC 701 (M34300N4–622SP) is replaced, it is necessary to make the initialize of IC 701 as following procedure.

1. Switch OFF the TV set.
2. Replace the IC 701.
3. Switch ON the TV set.
4. Select Programme Position "1" directly with the Remote Control Transmitter.
5. Press and hold the SPECIAL Key (of the Remote Control Transmitter) for more than 2,5 seconds, and input SPECIAL CODE "01" using the Programme Selector of the Remote Control Transmitter.
6. Press the MEMORY button of the TV set.

Remarks: If there is mistaking the procedure, switch OFF the TV set and repeat steps (3) to (6).

The initialize is now completed.

Next, operate the PRE-SETTING OF STATIONS to allocate TV channels. → Refer to the INSTRUCTION MANUAL of this TV set.

Importante informazione

Nel caso in cui IC 701 (M34300N4–622SP) venga sostituito, tale componente deve essere inizializzato come segue:

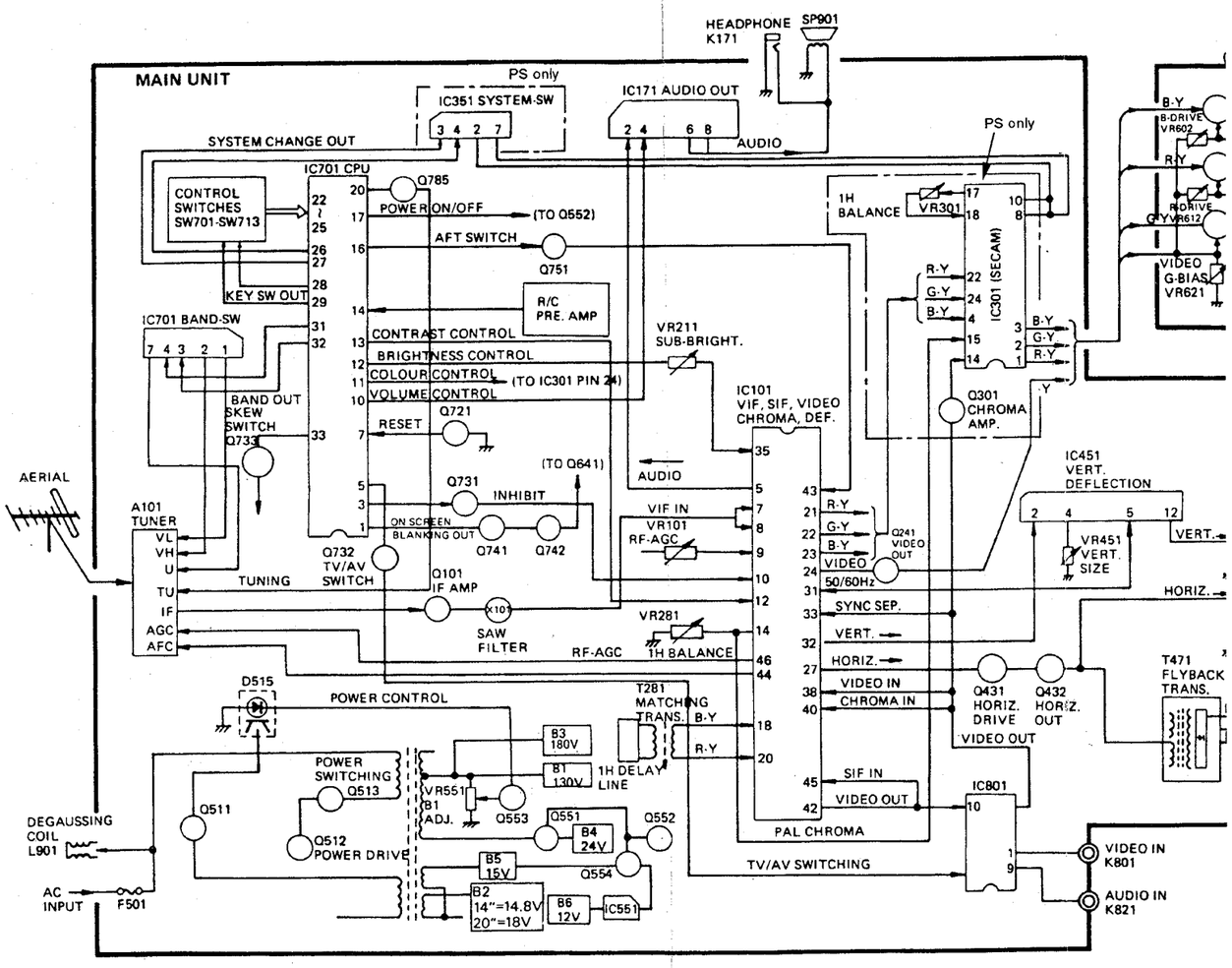
1. Disinserite il televisore.
2. Sostituite l'IC 701.
3. Collegate il televisore.
4. Selezionate la posizione di programma "1" direttamente con il telecomando.
5. Mantenete premuto il tasto "Special" (del telecomando) per più di 2,5 secondi e quindi scegliete il codice speciale "01" con il selezionatore di programma del televisore.
6. Premete il tasto di memoria del televisore.

Nota: Nel caso in cui tale procedimento non venga eseguito in maniera corretta è necessario spegnere il televisore e ripetere le operazioni da 3 fino a 6.

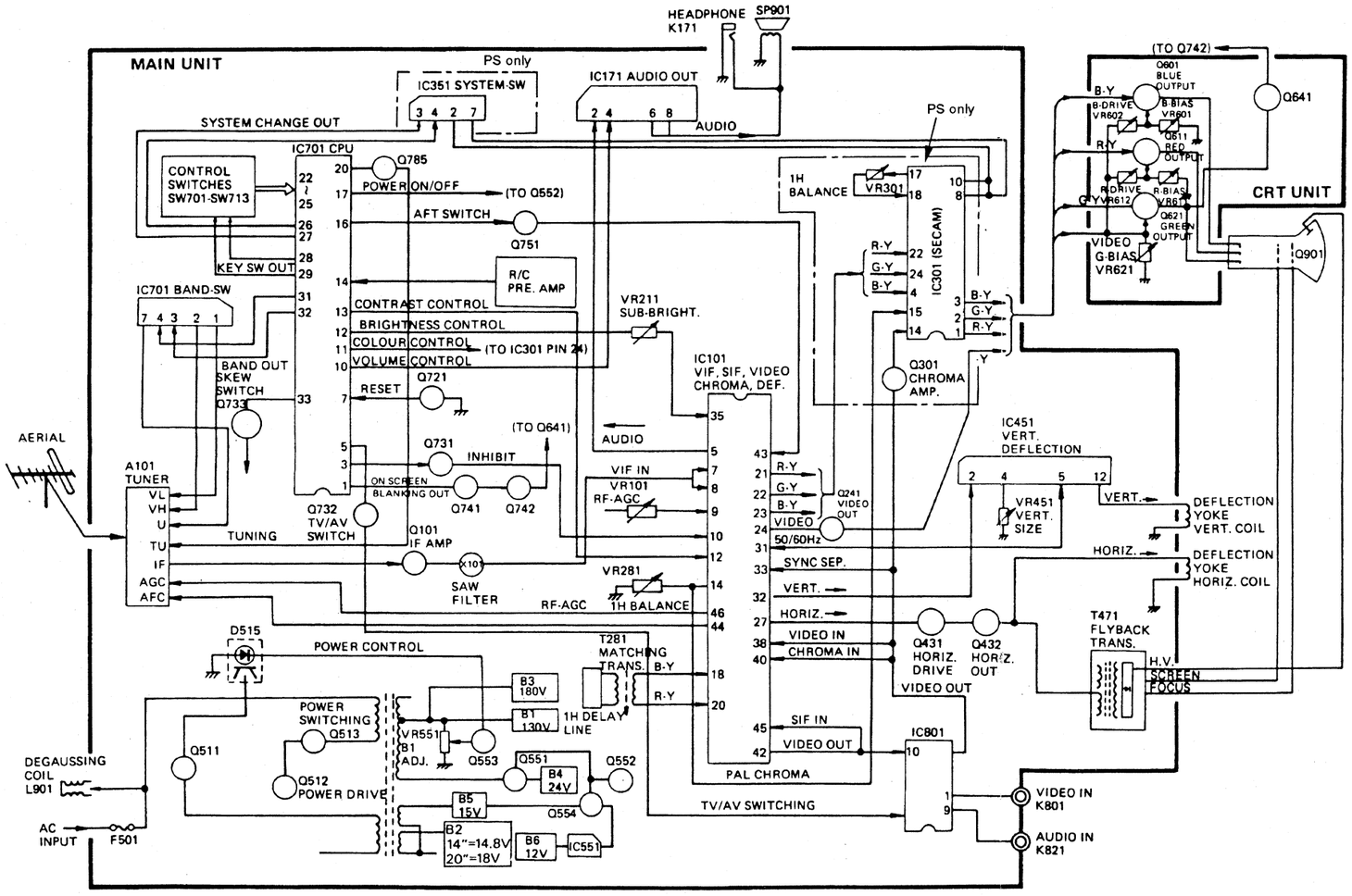
L'inizializzazione è ora conclusa.

Come prossimo passo dovrete regolare i canali e coordinare di coseguenza i vari programmi televisivi. → Pregasi ricavare ulteriori dettagli dal manuale d'istruzioni dell'apparecchio televisivo.

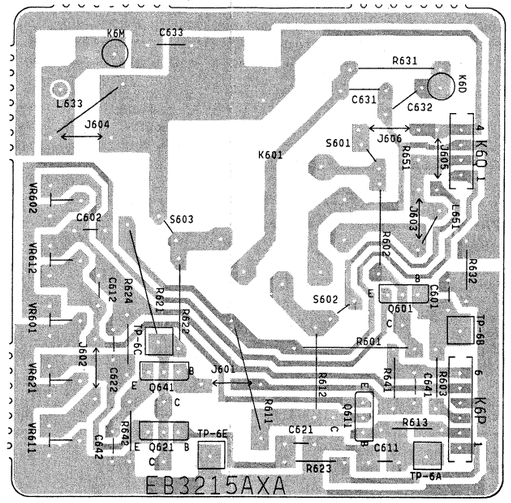
Übersichtsschaltbild
General circuit diagram
Schema elettrico prospettico



Übersichtsschaltbild
General circuit diagram
Schema elettrico prospettico



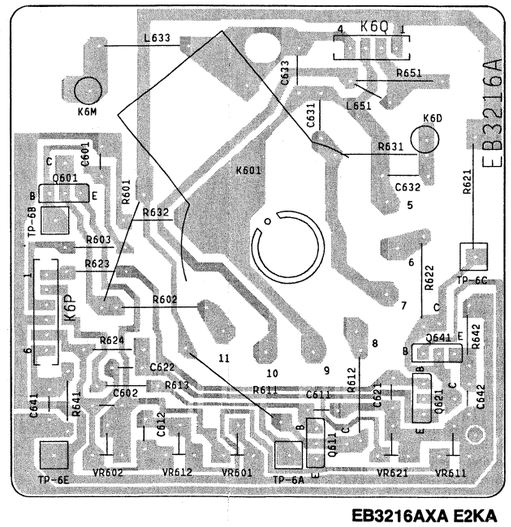
CRT BOARD (CIRCUIT SIDE)



EB3215AXA E2HA

Bildröhrenanschlußplatte / C.R.T. base board
Piastra di cinescopio
(Version 1)

CRT BOARD (CIRCUIT SIDE)



EB3216AXA E2KA

Bildröhrenanschlußplatte / C.R.T. base board
Piastra di cinescopio
(Version 2)

Einstellungen / Service adjustments / Messa a punto
→ = an / at / su

A) U_{+B1} = VR 551 130 V ± 1 V → TP-B

B) Helligkeits-Grundeinstellung / Sub brightness adjustment / Regolazione base della luminosità
1. Voltmeter / DC meter / Voltometro → TP–H (+) / TP-G (–)
2. – Farbbalkensignal einspeisen (Fig. 1), Chroma 100%
   – Tune the receiver to color bar generator (Fig. 1, Croma 100%)
   – Fornire un segnale di barre colore (Fig. 1, croma 100%)
3. ☼ + ◑ = max., ◕ = min.
4. VR 211 auf 0,2 V einstellen / Adjust sub brightness control (VR 211) for 0,2 V / Regolare il trimmer VR 211 per una lettura di 0,2 V
   – **Achtung:** Diese Einstellung nach Bildröhrenwechsel durchführen.
   – **Attention:** If picture tube replace, check sub-brightness adjustment.
   – **Attenzione:** Se viene sostituito il cinescopio controllare questa regolazione.

Grey	Yellow	Cyan	Green	Magenta	Red	Blue	Black
Grey							

Fig. 1

C) Anzeigebreite der Abstimmung / Tuning display width adjustment / Regolazione del display di sintonia
1. Testbild / Test picture / Fornire un immagine test (monoscopio)
2. SW 706 = ein / on / inserito
3. VR 710 = max. Anzeigebreite / for optimum the tuning bar with / per la massima ampiezza di visualiz.
4. SW 706 = aus / off / disinserito

D) AGC-Einstellung / AGC adjustment / Regolazione AGC
1. Optimales Empfangssignal einspeisen (VHF-Bereich)
   – Tune receiver to most clearest VHF station in your area
   – Sintonizzare il televisore sulla stazione TV piu chiaramento riceruta nella banda VHF e regolare
   ☼ + ◑ = max., ◕ = min.
2. VR 101 =
3. – VR 101 soweit verstellen, bis Rauschen auf dem Bildschirm erscheint, dann soweit zurückdrehen, bis Rauschen gerade verschwindet.
   – Turn AGC control in direction which causes snow to appear, then in the opposite direction until the snow just disappears.
   – Regolare il trimer VR 101 fino a far comparire un leggero effetto neve quindi, regolare leggermente all'indietro il trimmer fino ad ollerere un immagine pulita senza effetto neve.

E) Hor. Lage / Pos. orizz.

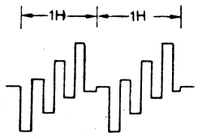
= VR 411 =

F) Vert. Amplitude / Ampiezza vert.
= VR 451 (Kreis / circle / cerchio)

G) Focus / Focus / Fuoco
= Einsteller (auf der linken Seite vom Chassis) auf opt. Schärfe einstellen.
= With adjuster (on the left side on chassis) for max. sharpness of picture.
= Regolare il trimmer alto presente (sul lato sinistro dello chassis), per la miglior focalizzazione del'immagine.

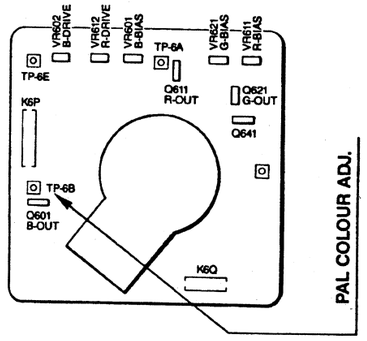
H) Schwarzabgleich + Weißabgleich / Grey scale + Tracking adjustment / Regolazione della scala dei grigi e del livello del bianco
1. ☼ + ◑ = max., ◕ = min.
2. Service-Schalter (SW 251) auf Service / Set the service switch (SW 251) at service / Pos. l'interruttore di servizio (SW 251) su „Service".
3. VR 602 + VR 612 =
   VR 621 + VR 611 + VR 601 = min.
4. U_{g2} / Screen / Schermo = min. (Zeilentrafo / Line transf. / trasformatore di riga)
   – Zurückdrehen, bis ein Strich gerade sichtbar ist.
   – Turn screen control to obtain just visible one coloured line.
   – Aumentare poi la regolazione fino a rendere appena visibile la riga orizz. al centro
5. – VR 621 (Grün / green / verde) / VR 601 (Blau / blue / blu) / VR 611 (Rot / red / rosso) so einstellen, bis die Striche zus. weiß ergeben.
   – Adjust each bias controls alternately until a dim white line produced.
   – Regolare alternativamente i trimmers VR 621, VR 601 e VR 611 fino a far diventare la riga orizzontale al centro perfettamente bianca.
6. Service-Schalter auf „Normal" / Service switch at the norm. side / Inserite l'interruttore di serv. su normal
7. – VR 612 (Rot) und VR 602 (Blau) so einstellen, bis ein Schwarz-weiß-Bild ohne Farbstich (unbunt) wiedergegeben wird.
   – Adjust red and blue drive controls alternately to produce normal black and white picture.
   – Regolare alternativamente i trimmers VR 612 e VR 602 fino ad ottenere un immagine perfettamente neutra senza predominaze di un colore.
8. Kontrollieren, ob die Grauwerte in allen Helligkeitsbereichen gut wiedergegeben werden.
   – Check for proper grey scale tracking at all brightness level.
   – Controllare che la scala dei grigi venga correttamente riprodotta a tutti i livelli di luminosita.

I) PAL-Decodereinstellung / PAL colour adjustment / Regolazione del decoder PAL
1. Farbbalkentestbild einspeisen / Receive colour bar pattern / Sintonizzare il televisore su un segnale a barre colore.
2. ☼ + ◕ = max., ◑ = max.
3. Oscilloscop. → TP 6B (Bildröhrenplatte / C.R.T. board / Piastra del cinescopio)
4. – VR 281, T 281 so einstellen, daß 1 H der Abbildung 2 entspricht.
   – VR 281, T 281 to obtain each 1 H waveform for same as shown below
   – Regolare VR 281 e T 281 in modo da ottenere, che 1 H corrisponda alla figura 2.
5. – L 211 so einstellen, daß die Kurvenform der Abbildung 2 entspricht.
   – Adjust L 211 to obtain proper waveform as shown in Fig. 2.
   – Regolare L 211 per ottenere una corretta forma d'onda come mostrato in Fig. 2.

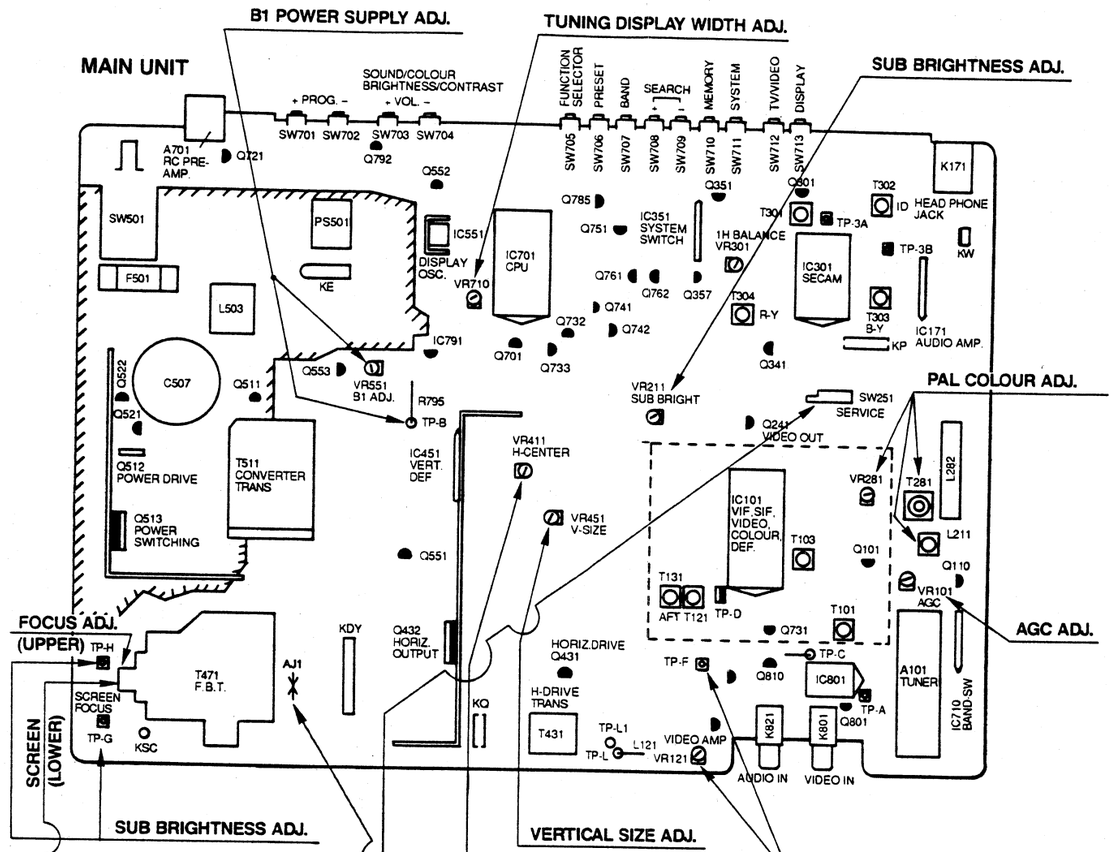


B-Y WAVEFORM
Figure 2

CRT UNIT (Version 2)



INSTALLATION AND SERVICE ADJUSTMENT



1. Tune the receiver to mono-chrome circular test pattern.
2. Set brightness and contrast to maximum.
3. If picture is too wide or narrow, cut or short lead (AJ1) on main unit.

If lead is shorted, horiz. Width Increase.
If lead is cut, horiz. Width Decrease.

NOTE: Horiz. width adjustment affects high voltage and sub brightness. Therefore, recheck SUB-BRIGHTNESS and HIGH VOLTAGE.

1. Tune receiver to colour bar pattern. (See Fig. 1)
   Connect the oscillator to TP-F.
2. Adjust VR121 for 1.0Vp-p as shown in Fig. 2.

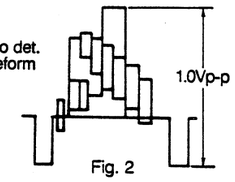
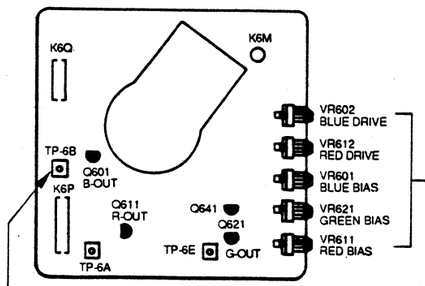


Fig. 2

CRT UNIT (Version 1)

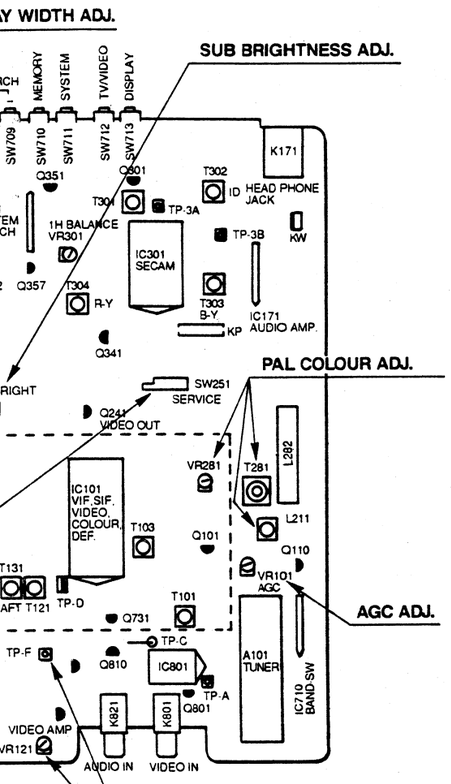


PAL COLOUR ADJ.

Grey	Yellow	Cyan	Green	Magenta	Red	Blue	Black
Grey							

Fig. 1

MAIN
SW708 SW709
IC351 SYSTEM SWITCH
Q762 Q3
742
VR211 SUB BRIGHT



H ADJ.

o mono-chrome
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l contrast to

e or narrow, cut
on main unit.
z. Width Increase.
idth Decrease.
djustment affects
brightness.
UB-BRIGHTNESS

1. Tune receiver to colour bar pattern. (See Fig. 1)
   Connect the oscillator to TP-F.
2. Adjust VR121 for 1.0Vp-p as shown in Fig. 2.

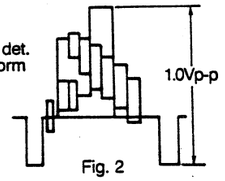
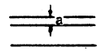
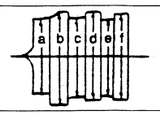
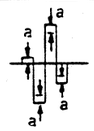
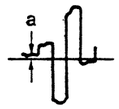
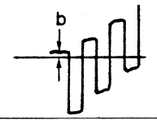


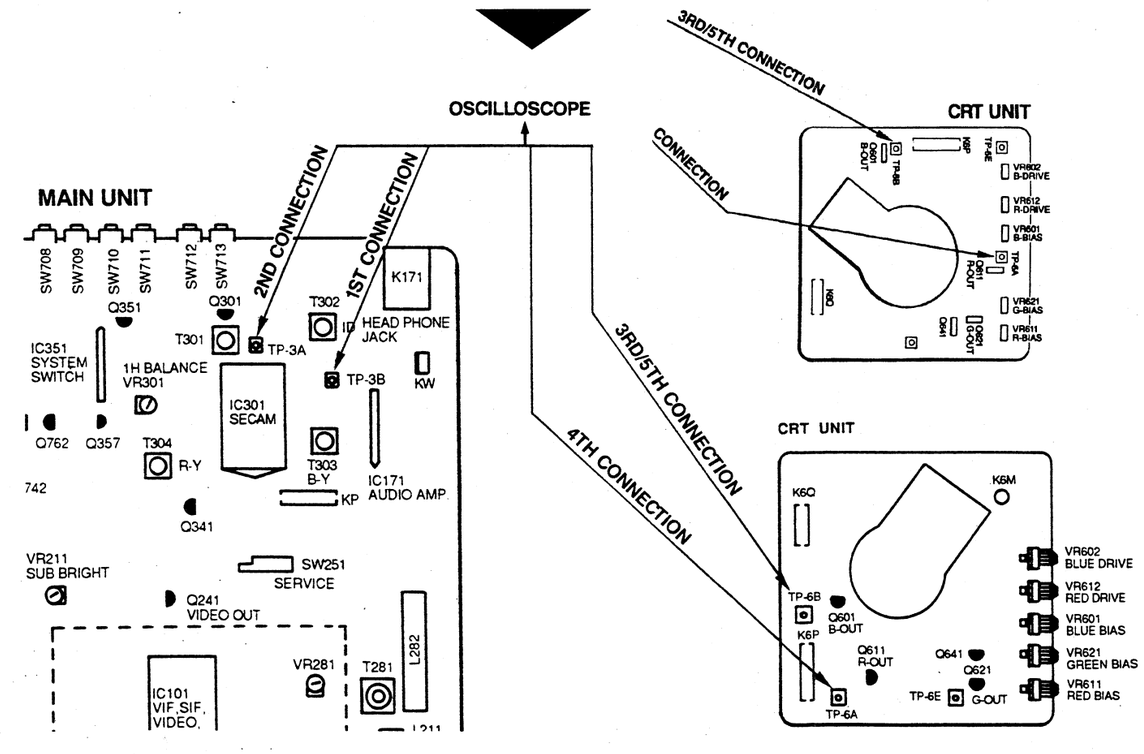
Fig. 2

Grey	Yellow	Cyan	Green	Magenta	Red	Blue	Black
Grey							

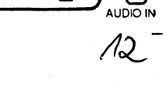
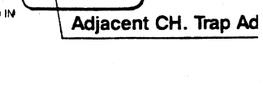
Fig. 1

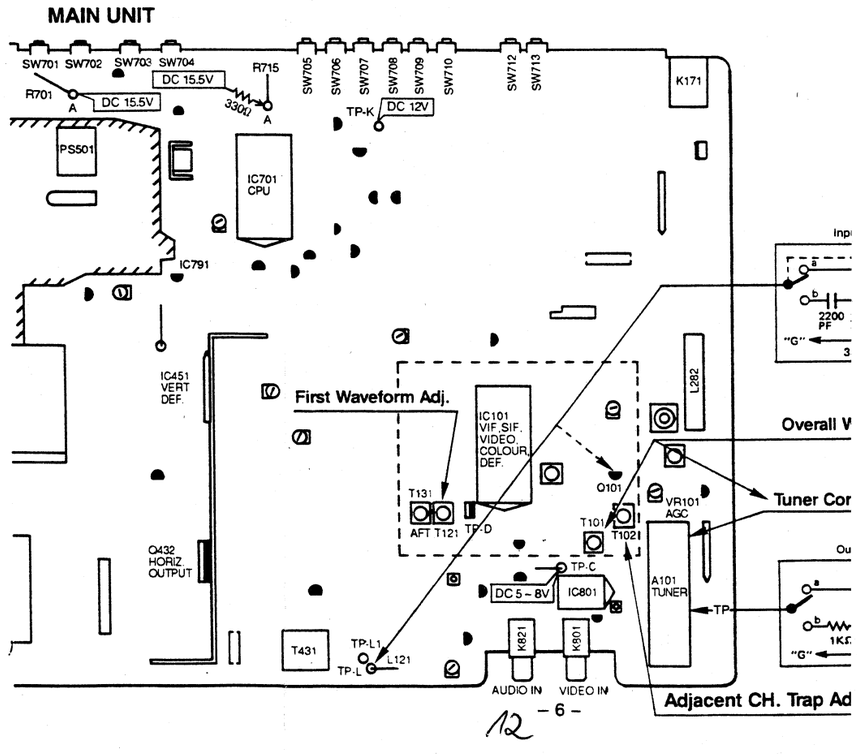
Chrom-Einstellung für SECAM (nur bei 3711PS) / Secam chrom adj. (model 3711 PS) / Regolazione cromatica per SECAM (soltanto per 3711PS)

	Einstellen / Adjust / Regolazione	Anmerkung / Remarks / Osservazione	– SECAM Testbild / Colour bar generator / immagine di test – ☼ + ◑ + ◕ = max. – Oszilloscop → TP-3B
1	T302	Stellen Sie T302 auf minimale Gleichspannung und auf minimale Amplitude bei Position A ein. Adjust T302 for minimum DC level and for minimum amplitude at "a" position. Regolate il T302 sulla tensione continua minima e sull' ampiezza minima nella posizione A.	DC = 0 
Trennen Sie das Oszilloskop und schließen es neu an TP-3A an. / Disconnect the oscilloscope, reconnect the oscilloscope to TP-3A. / Scollegate l'oscilloscopio e ricollegatelo al TP-3A.			
2	T301	Stellen Sie T301 so ein, daß bei jedem Farbbalken die gleiche Amplitude anliegt. Adjust T301 for same amplitude in each colour bar waveform as shown right. Regolate il T301 in modo che si presenti la stessa ampiezza per ogni barra cromatica.	 Stellen Sie T301 so ein, daß c = d = e = f Adjust T301 to c = d = e = f Regolate il T301 in modo che c = d = e = f
Trennen Sie das Oszilloskop und schließen es neu an TP-6B der Röhre an. / Disconnect the oscilloscope, reconnect the oscilloscope to TP-6B of the CRT UNIT. / Scollegate l'oscilloscopio e ricollegatelo al TP-6B del cinescopio.			
3	VR301	Stellen Sie VR301 auf minimale Amplitude bei Position a ein. **Hinweis:** Wenn VR301 neu eingestellt wird, muß auch die PAL-Farbeinstellung überprüft werden. Adjust VR301 for minimum amplitude at "a" position. **Note:** If VR301 Re-adjust, Recheck PAL COLOUR ADJ. Regolate il VR301 sull' ampiezza minima in posizione a. **Nota:** Se il VR301 viene nuovamente regolato, è necessario controllare anche la regolazione cromatica PAL.	
Trennen Sie das Oszilloskop und schließen es neu an TP-6A der Röhre an. / Disconnect the oscilloscope, reconnect the oscilloscope to TP-6A of the CRT UNIT. / Scollegate l'oscilloscopio e ricollegatelo al TP-6A del cinescopio			
4	T304	Stellen Sie T304 auf a = 0 ein. Adjust T304 for a = 0. Regolate T304 su a = 0.	 DC ZERO LEVEL R-Y WAVEFORM
Trennen Sie das Oszilloskop und schließen es neu an TP-6B der Röhre an. / Disconnect the oscilloscope, reconnect the oscilloscope to TP-6B of the CRT UNIT. / Scollegate l'oscilloscopio e ricollegatelo al TP-6B del cinescopio.			
5	T303	Stellen Sie T303 auf b = 0 ein. Adjust T303 for b = 0. Regolate T303 su b = 0.	 DC ZERO LEVEL B-Y WAVEFORM



ZF-Abgleich / VIF adjustment / Regolazione dell'immagine e del suono

	Position / Item / Posizione	erste Wellenform / First Waveform / Prima forma d'onda /	Benachbarter Kanal / Adjacent CH. Trap Adj. / Canale contiguo
CONNECTION	– DC 15,5 V – DC 5–8 V – Ausgangsmeßfühler / Output probe / Sensore di uscita – Eingangsmeßfühler / Input probe / Sensore di ingresso – 12 V = (Einstellung) / DC 12 V (TUNING) / 12 V (Regolazione) – 15,5 V = (über 330 Ω Widerstand) / DC 15,5 V = (through a 330 Ω resistor) / 15,5 V = (oltre 330 Ω resistenza	R701-A TP-C Tuner TP TP-L TP-K R715-A	R701-A TP-C Tuner TP Q 101 (Kollektor) TP-K R715-A
CONDITION	– Ausgangsmeßfühler / Output probe / Sensore di uscita – Eingangsmeßfühler / Input probe / Sensore di ingresso – VR 101 / VR 101 / VR 101 – Oszilloskopsensor / Oscilloscope Sens. / Sensore oscilloscopio – Zeitablenkung ATT / Sweep ATT / Asse dei tempi ATT – Dämpfungswiderstand 100 Ω / Damping resistor 100 Ω / Resistenza di smorzamento 100 Ω – Kanal Band / Channel Band / Banda canale	Seite a / Side a / Lato a Seite a / Side a / Lato a Uhrzeigersinn Anschlag / Clockwise end / In senso orario 100 mV/div 0 dB keiner / non / nessuna VHF, niedrig / VHF-Low / VHF, bassa	Seite a / Side a / Lato a Seite b / Side b / Lato b Uhrzeigersinn Anschlag / Clockwise end / In senso orario 100 mV/div 0 dB keiner / non / nessuna VHF, niedrig / VHF-low / VHF, bassa
	EINSTELLUNG / ADJUSTMENT / REGOLAZIONE	Stellen Sie P mit T121 auf den Maximalwert von 38,9 MHz ein. By using T121, adjust P (38,9 MHz) to be maximum. Regolate P con T121 sul valore massimo di 38,9 MHz.	a) Stellen Sie A mit T102 auf den Minimalwert von 40,4 MHz ein. By using T102, adjust A (40,4 MHz) to be minimum. Regolate A con T102 sul valore minimo di 40,4 MHz. b) Stellen Sie A mit T104 auf den Minimalwert von 31,9 MHz. By using T104, adjust A (31,9 MHz) to be minimum. Regolate A con T104 sul valore minimo di 31,9 MHz.
	WELLENFORMEN / WAVEFORMS / FORME D'ONDA		



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TP-6B of the CRT

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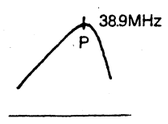
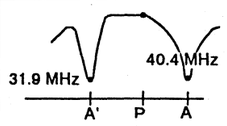
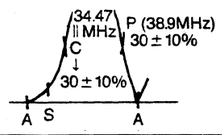
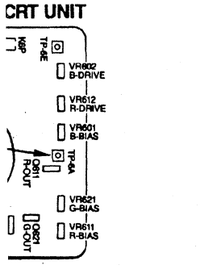
ZF-Abgleich / VIF adjustment / Regolazione dell'immagine e del suono

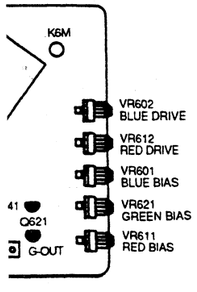
	Position / Item / Posizione	erste Wellenform / First Waveform / Prima forma d'onda /	Benachbarter Kanal / Adjacent CH. Trap Adj. / Canale contiguo	Gesamtwellenform / Overall Waveform / Forma d'onda intera
CONNECTION	– DC 15,5V – DC 5–8V – Ausgangsmeßfühler / Output probe / Sensore di uscita – Eingangsmeßfühler / Input probe / Sensore di ingresso – 12V = (Einstellung) / DC 12V (TUNING) / 12V (Regolazione) – 15,5V = (über 330Ω Widerstand) / DC 15,5V = (through a 330Ω resistor) / 15,5V = (oltre 330Ω resistenza	R701-A TP-C Tuner TP TP-L TP-K R715-A	R701-A TP-C Tuner TP Q 101 (Kollektor) TP-K R715-A	R701-A TP-C Tuner TP TP-L TP-K R715-A
CONDITION	– Ausgangsmeßfühler / Output probe / Sensore di uscita – Eingangsmeßfühler / Input probe / Sensore di ingresso – VR 101 / VR 101 / VR 101 – Oszilloskopsensor / Oscilloscope Sens. / Sensore oscilloscopio – Zeitablenkung ATT / Sweep ATT / Asse dei tempi ATT – Dämpfungswiderstand 100Ω / Damping resistor 100Ω / Resistenza di smorzamento 100Ω – Kanal Band / Channel Band / Banda canale	Seite a / Side a / Lato a Seite a / Side a / Lato a Uhrzeigersinn Anschlag / Clockwise end / In senso orario 100mV/div 0dB keiner / non / nessuna VHF, niedrig / VHF-Low / VHF, bassa	Seite a / Side a / Lato a Seite b / Side b / Lato b Uhrzeigersinn Anschlag / Clockwise end / In senso orario 100mV/div 0dB keiner / non / nessuna VHF, niedrig / VHF-low / VHF, bassa	Seite b / Side b / Lato b Seite a / Side a / Lato a Uhrzeigersinn Anschlag / Clockwise end / In senso orario 100mV/div 20dB TP-D VHF, niedrig / VHF-low / VHF, bassa
EINSTELLUNG / ADJUSTMENT / REGOLAZIONE		Stellen Sie P mit T121 auf den Maximalwert von 38,9 MHz ein. By using T121, adjust P (38,9MHz) to be maximum. Regolate P con T121 sul valore massimo di 38,9 MHz.	a) Stellen Sie A mit T102 auf den Minimalwert von 40,4 MHz ein. By using T102, adjust A (40,4 MHz) to be minimum. Regolate A con T102 sul valore minimo di 40,4 MHz. b) Stellen Sie A mit T104 auf den Minimalwert von 31,9 MHz. By using T104, adjust A (31,9 MHz) to be minimum. Regolate A con T104 sul valore minimo di 31,9 MHz.	Stellen Sie die unten dargestellte Wellenform mit der Wandlerspule und T101 ein. By using Tuner Converter Coil and T101, adjust the waveform as shown below. Regolate la forma d'onda rappresentata qui in basso con il convertitore e T101.
WELLENFORMEN / WAVEFORMS / FORME D'ONDA				

AGC-Einstellung / AGC adjustment / Regolazione AGC

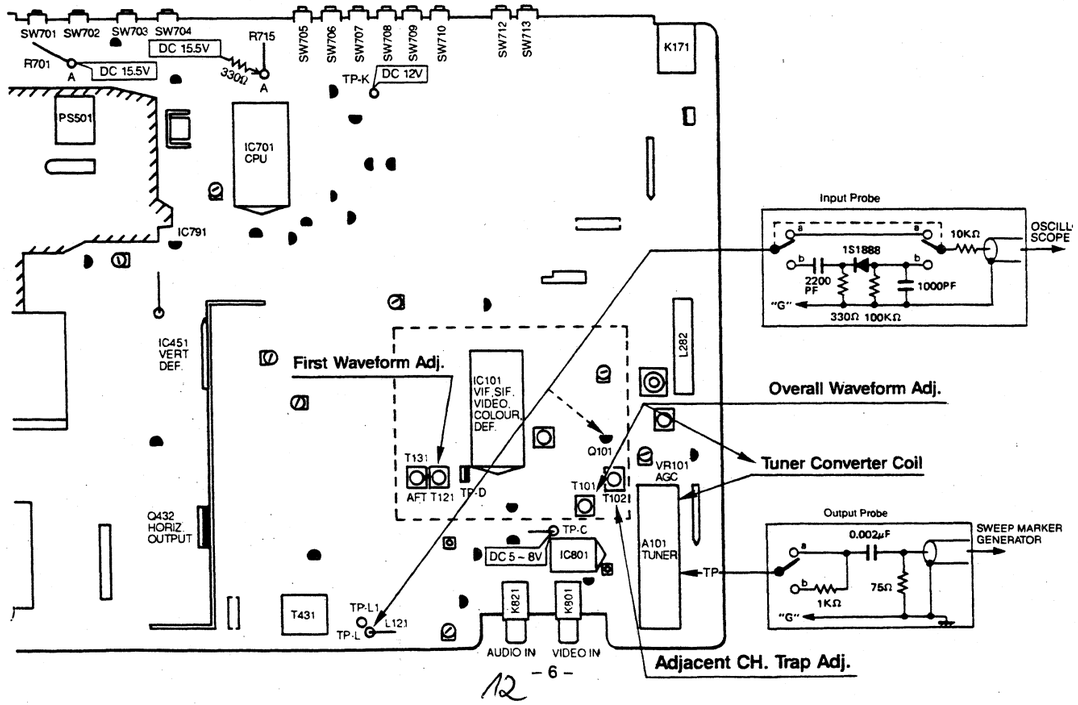
	Position / Item / Posizione	AGC Spannung / AGC Volt. Alignment / Tensione AGC	Resonanzfrequenz / Resonance Frequency Adj. / Frequenza di risonanza
CONNECTION	– 15,5V = – Gleichstrom AGC / DC (AGC) / Corrente continua AGC – Ausgangsmeßfühler / Output probe / Sensore di uscita – Eingangsmeßfühler / Input probe / Sensore di ingresso – 12V = (Einstellung) / DC 12V (Tuning) / 12V = (Regolazione) – DC 33V =	R701-A TP-C Tuner-TP TP-L TP-K R795-A	R701-A TP-C Tuner-TP TP-J TP-K R795-A
CONDITION	– Zeitablenkung ATT / Sweep ATT / Asse dei tempi ATT – Ausgangsmeßfühler / Output probe / Sensore di uscita – Oszilloskop – SG-Ausgang / SG output / Uscita SG – Dämpfungswiderstand / Damping resistor / Resistenza di smorzamento	20dB Seite b / Side b / Lato b 100mV/div keiner / non / nessuna TP-D 100Ω	20 dB Seite b / Side b / Lato b 1V/div 20 mV_{eff} (Att 20dB) keiner / non / nessuna
EINSTELLUNG / ADJUSTMENT / REGOLAZIONE		Fixieren Sie die AGC-Spannung, wenn der Ausschlag der Schwingung auf 1,0V Spitze zu Spitze eingestellt ist. Fix the AGC voltage when the overall waveform level is adjusted at 1,0V p-p. Fissate la tensione AGC quando il fine corsa dell'oscillazione è regolato vertice a vertice su 1,0V.	Behalten Sie die AGC-Spannung bei, die bei der Einstellung der AGC-Spannung eingestellt wurde und stellen Sie T131 so ein, daß die 38,9 MHz-Marke genau auf der Bezugslinie liegt. Keep AGC voltage which is adjusted at AGC Volt. Alignment, and adjust T131 for 38,9MHz market is just on the reference line. Mantenete la tensione AGC determinata durante la regolazione della tensione AGC e regolate T131 in modo che il simbolo 38,9 MHz si trovi sulla linea di riferimento.
WELLENFORMEN / WAVEFORM / FORME D'ONDA			

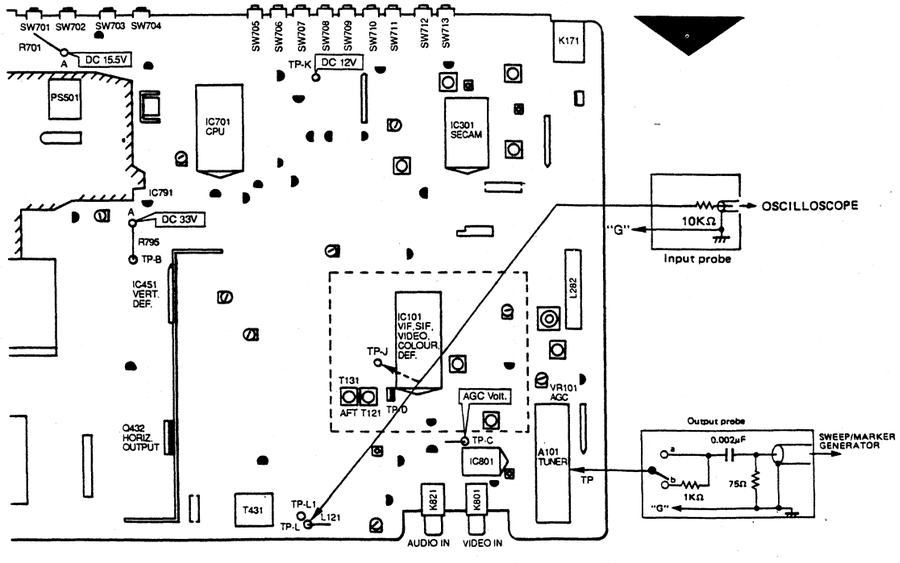
CRT UNIT





MAIN UNIT





Bei Nachbestellungen von Manualen, Gerätetyp und Geräte-Ident-Nummer angeben.
When re-ordering manuals, please quote the model name and part number.
En cas de commande supplémentaire de manuels veuillez indiquer le type et le numéro de l'appareil.
Per riordinare i manuali, indicare il modello dell'apparecchio ed il numero categorico.

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Einstellen von Farbreinheit und Konvergenz

Vorsicht: Farbreinheit und Konvergenz werden werkseitig eingestellt. Versuchen Sie nicht, diese Einstellung zu ändern. Durch die Einwirkung benachbarter Bauteile des Empfängers und nach einem Auswechseln der Bildröhre oder der Ablenkmagnetstifte kann es notwendig werden, Farbreinheit und Konvergenz neu einzustellen. In diesem Fall sollte in der folgenden Reihenfolge vorgegangen werden:

EINSTELLEN DER FARBREINHEIT

1. Benutzen Sie ein farbiges Testsignal (Rot, Blau, Grün).
2. Legen Sie die Röhre so, daß ihre Stirnfläche nach Westen oder Osten zeigt und entmagnetisieren Sie Bildröhre und Empfänger mit einer Entmagnetisierungsspule.
3. Schalten Sie nun das rote und blaue Raster aus, damit nur noch das grüne am Bildschirm dargestellt wird.
4. Lösen Sie die Schraube, die den Ablenkmagnetstift hält, entfernen Sie die drei DY-Keile und schieben Sie den Ablenkmagnetstift voll nach vorne.
5. Drehen Sie die Farbreinheitsmagnetstifte (Winkel zwischen den beiden Stiften vergrößern oder verkleinern) so lange, bis Sie einen zentrierten senkrechten Strich sehen.
   (Wenn sich der senkrechte grüne Strich nicht einstellen läßt, kann der Ablenkmagnetstift auch nach hinten geschoben werden.)
   Hinweis: Sie dürfen die vertikale Zentrierung des Bildes keinesfalls durch Verstellen des Farbreinheitsmagneten verändern.
6. Schieben Sie den Ablenkmagnetstift langsam in seine Ausgangsposition zurück, bis sich wieder ein einheitliches grünes Raster einstellt.
7. Überprüfen Sie die Farbreinheit bei den Farben Rot und Blau.
   (Rotes Raster an- und grünes bzw. blaues Raster abschalten.)
   (Blaues Raster an- und grünes bzw. rotes Raster abschalten.)
   Stellen Sie die Position des Ablenkmagneten nötigenfalls so lange ein, bis alle Raster rein abgebildet werden.
   Sofern ein Teil des Bildschirms in irgendeiner Richtung (Ost, West, Norden oder Süden) farbig ist, müssen Empfänger und Bildröhre entmagnetisiert und der Ablenkmagnet ein klein wenig nach vorne oder hinten verschoben werden.
8. Ziehen Sie die Befestigungsschraube des Ablenkmagneten an und montieren Sie wieder die DY-Keile.

EINSTELLEN DER KONVERGENZ

Bevor die Konvergenz eingestellt werden kann, muß die Farbreinheit richtig eingestellt sein. Schließen Sie den Gittermustergenerator an die Antennenbuchse an.
Lösen Sie den Haltering an Reinheits- und Konvergenzmagnet.
Hinweis: Während Sie die Konvergenzmagneten einstellen, dürfen die Reinheitsmagneten nicht verändert werden.

ZENTRUMSKONVERGENZ

1. Schalten Sie das grüne Raster aus und bilden Sie das blaue und rote Raster am Bildschirm ab.
2. Um die senkrechten roten und blauen Linien zu überlagern, muß der Winkel zwischen Magnetstift 1 und 2 vergrößert oder verkleinert werden (siehe Abbildung 1).
3. Drehen Sie die Stifte 1 und 2 gemeinsam, um die waagerechten blauen und roten Linien zu überlagern. (Behalten Sie hierbei den Winkel zwischen den Stiften bei.) Abb. 1
4. Holen Sie das grüne Raster auf den Bildschirm.
5. Der Winkel zwischen den Stiften 3 und 4 wird vergrößert oder verkleinert, wenn die senkrechten magentafarbenen (rot/blauen) und grünen Linien überlagert werden sollen. Abb. 2
6. Drehen Sie die Stifte 3 und 4 gemeinsam, um die waagerechten magentafarbenen (rot/blauen) und grünen Linien zu überlagern. Abb. 2.

RANDKONVERGENZ

Wenn die Konvergenz in den Randbereichen nicht richtig eingestellt ist, müssen Sie folgendermaßen vorgehen:

Purity and convergence adjustment

Caution: Convergence and Purity have been factory aligned. Do not attempt to tamper with these alignments. However, the effects of adjacent receiver components, or replacement of picture tube or deflection yoke may require the need to readjust purity and convergence. If adjustment is required, the adjustments should be made in the following sequence.

PURITY ADJUSTMENTS

1. Use a colour (Red, Green and Blue) pattern signal. Receiver should be operated for at least ten minutes.
2. Place the picture tube face east or west and demagnetize the picture tube and receiver using an external degaussing coil.
3. Turn off Red and Blue rasters and provide only Green raster on CRT screen.
4. Loosen the screw holding the Deflection yoke and remove the 3 D.Y. wedges, and slide the Defection yoke fully frontward.
5. Rotate the two purity magnet tabs (widen or narrow the mutual angle made by the two tabs) to centre a vertical green stripe.
   (If the vertical green stripe doesn't obtain, in case, slide the deflection yoke backward).
   Note: Do not move the vertical centre position by adjusting purity magnet.
6. Slowly slide the Deflection yoke backward (or frontward) until a uniform green raster is obtained.
7. Check the purity of the red and blue rasters for uniformity.
   (Turn up red raster and turn off green and blue rasters).
   (Turn up blue raster and turn off green and red rasters).
   Readjust the Deflection yoke position if necessary until all rasters are pure.
   If part of the screen at each direction (east, west, north or south) is colored, demagnetize the receiver and the picture tube and adjust the Deflection yoke position slightly frontward or backward.
8. Tighten the mountig screw of the Deflection yoke and mount D.Y. wedges.

CONVERGENCE ADJUSTMENTS

Before any convergence adjustments are made, purity must be adjusted properly. Connect cross-hatch generator to aerial socket.
Loosen locking ring provided on purity & convergence magnets.
Notice: When adjust the convergence magnets, do not move purity magnets.

CENTRE CONVERGENCE

1. Turn off green raster and provide blue and red raster on CRT.
2. To superimpose the red/blue vert. lines, spread (or narrow) the angle of magnet tab 1 between tab 2. See Fig-1
3. To superimpose the red/blue horiz. lines, rotate the magnet tabs 1 and 2 together (keeping the angle of magnet tabs 1 and 2). See Fig-1
4. Turn up green raster.
5. To superimpose the green and magenta (blue/red) vert. lines, spread (or narrow) the angle of magnet tab 3 between tab 4. See Fig-2
6. To superimpose the green and magenta (blue/red) horiz. lines, rotate the magnet tabs 3 and 4 together (keeping the angle of magnet tabs 3 and 4). See Fig-2
   Now forming white cross-hatch pattern at centre of screen. Fasten locking ring.

Regolazione della purezza del colore e della convergenza

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Avvertenza: La regolazione della purezza del colore e della convergenza viene effettuata dal produttore. Non tentate di modificare tale regolazione. Tramite l'effetto di componenti contigui al ricevitore e dopo una sostituzione del cinescopio oppure delle intelaiature magnetiche di deflissione può rendersi necessario regolare di nuovo la purezza del colore e la convergenza. In questo caso si deve procedere nella seguente sequenza:

REGOLAZIONE DELLA PUREZZA DEL COLORE

1. Utilizzate un segnale di prova cromatico (rosso, blu, verde).
2. Posizionate il cinescopio in modo che la sua superficie frontale sia rivolta verso Ovest oppure verso Est, quindi smagnetizzate il cinescopio e il ricevitore mediante una bobina di smagnetizzazione.
3. Disinserite ora il quadro rosso e quello blu, cosicchè venga rappresentato sullo schermo soltanto quello verde.
4. Allentate la vite che fissa l'intelaiatura magnetica di deflessione, togliete i tre cunei DY e spingete l'intelaiatura magnetica di deflessione completamente in avanti.
5. Girate entrambe le intelaiature magnetiche della purezza del colore (ampliare o restringere l'angolo tra entrambe le intelaiature) fintanto che non vedete una linea centrata verticale.
   (Se non è possibile regolare tale linea verde verticale, l'intelaiatura magnetica di deflessione può essere spinta anche all'indietro.)
   Nota: Non potete assolutamente modificare la centratura verticale dell'immagine regolando i magneti della purezza del colore.
6. Rispingete l'intelaiatura magnetica di deflessione lentamente nella sua posizione di partenza finchè non si riproduce nuovamente un quadro verde uniforme.
7. Verificate la purezza del colore con i colori rosso e blu.
   (Inserire il quadro rosso e disinserire il quadro verde oppure blu.)
   (Inserite il quadro blu e disinserite il quadro verde oppure rosso.)
   Regolate la posizione del magnete di deflessione se necessario finchè tutti i quadri non vengono fatti apparire in modo chiaro. Nel caso in cui una parte dello schermo sia cromatica in una qualsiasi direzione (Est, Ovest, Nord oppure Sud), il ricevitore e il cinescopio devono venir smagnetizzati e il magnete di deflessione deve venir spostato appena in avanti o all'indietro.
8. Serrate le viti di fissaggio del magnete de deflessione e rimontate i cunei DY.

REGOLAZIONE DELLA CONVERGENZA

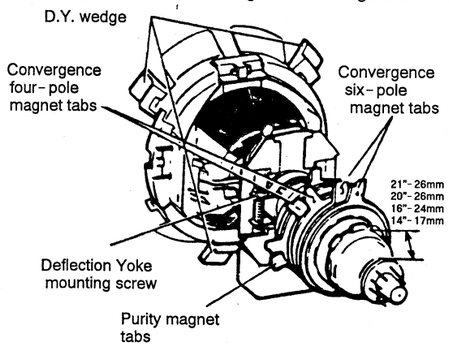
Prima di poter effettuare la regolazione della convergenza, la purezza del colore deve essere regolata correttamente. Collegate il generatore campione di griglia alla presa dell'antenna.
Allentate l'anello di fissaggio del magnete di purezza e di convergenza.
Nota: Mentre regolate i magneti di convergenza, i magneti di purezza non possono essere modificati.

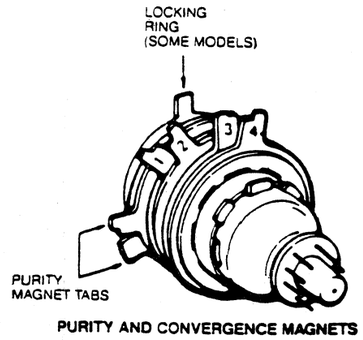
CONVERGENZA DI CENTRO:

1. Disinserite il quadro verde e fate apparire il quadro blu e quello rosso sullo schermo.
2. Al fine di sovrapporre le linee verticali rosse e blu, l'angolo tra l'intelaiatura magnetica 1 e 2 deve essere ampliato oppure ristretto (vedere l'illustrazione 1).
3. Girate le intelaiature 1 e 2 insieme per sovrapporre le linee orizzontali blu e rosse. (Mantenete qui costante l'angolo tra le intelaiature.) Illustrazione 1.
4. Richiamate il quadro verde sullo schermo.
5. L'angolo tra le intelaiature 3 e 4 viene ampliato o ristretto nel caso in cui si vogliano sovrapporre le linee verticali di color magenta ((rosso/blu) e le linee verdi. Illustrazione 2.
6. Girate le intelaiature 3 e 4 insieme per sovrapporre le linee orizzontali di color magenta (rosso/blu) e le linee verdi. Illustrazione 2.
   Dopo che si è formato il tratteggio campione bianco sullo schermo, bisogna serrare l'anello di fissaggio.

Convergenza del margine

Se la convergenza nelle aree merginali non è regolata correttamente dovrete procedere secondo le seguenti operazioni:

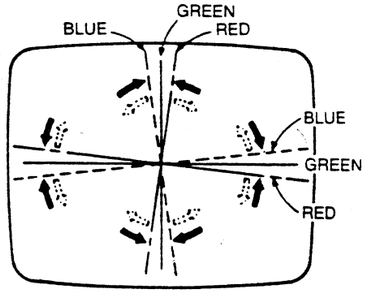


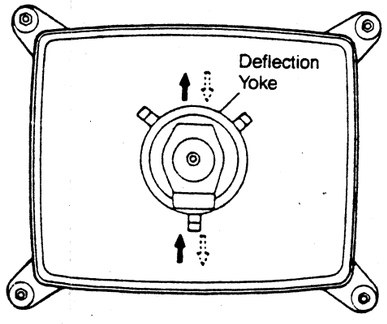


PURITY AND CONVERGENCE MAGNETS

OUTER AREA CONVERGENCE

If mis-convergence on the outer area exits, as follow adjustment.





Swing the Deflection Yoke the ⬅ direction, Red/Blue lines on the screen move the ⬅ direction.
Swing the Deflection Yoke the ⇦ direction, Red/Blue lines on the screen move the ⇦ direction.

Tuner Schalt
Tuner circuit
Schema per

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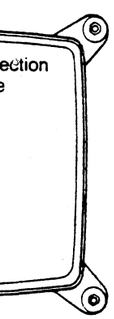
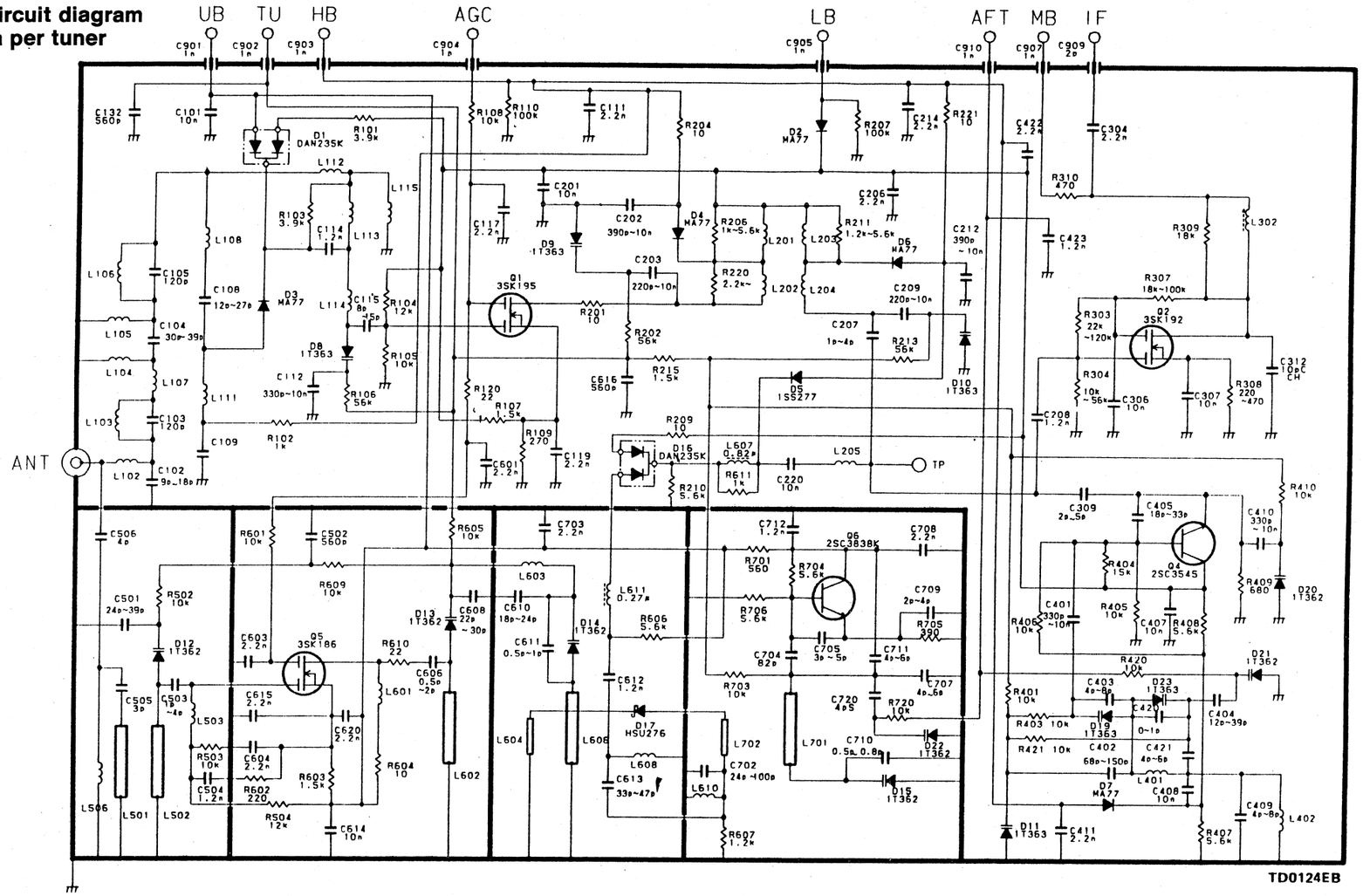
i:

E MAGNETS

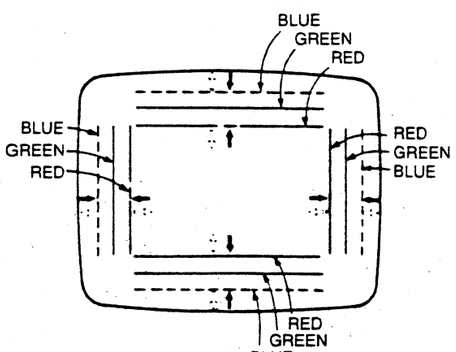


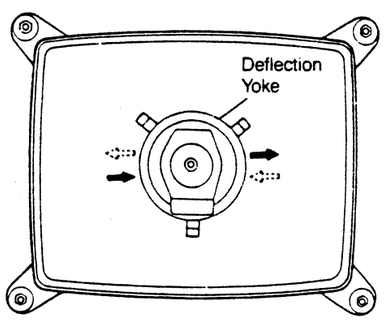
Tuner Schaltbild
Tuner circuit diagram
Schema per tuner



Q1 : 3SK195 . 3SK182 . 3SK137 . 3SK144 . 3SK192 . 3SK194
Q2 : 3SK192 . 3SK137 . 3SK131 . 3SK151 . 3SK194 . 3SK169
Q4 : 2SC3545, 2SC3124, 2SC2757, 2SC2735, 2SC2480
Q5 : 3SK186 . 3SK143 . 3SK199 . 3SK135 . 3SK207
Q6 : 2SC3838K, 2SC2734, 2SC3545, 2SC3130, 2SC3121

D1 . D16 : DAN235K, HSM2693, 1SS268
D8 -D11 : 1T363 . 1SV215, 1SV232, HSV200, 1SV219, MA366 . MA371
D12-D15 : 1T362 . 1SV214, HVU202, 1SV221, MA360 . 1SV223
D19, D23 : 1T363 . HSV200, 1SV219, MA366 . MA371
D2-D4, D6, D7 : MA77 . 1SS314, 1SS317, 1SS316, HSU277, 1SS318
D5 : 1SS277, 1SS135, 1SS110
D17 : HSU276, 1SS315, 1SS237
D20, D21, D22 : 1T362 . MA367 . 1SV126, 1SV223, 1SV214

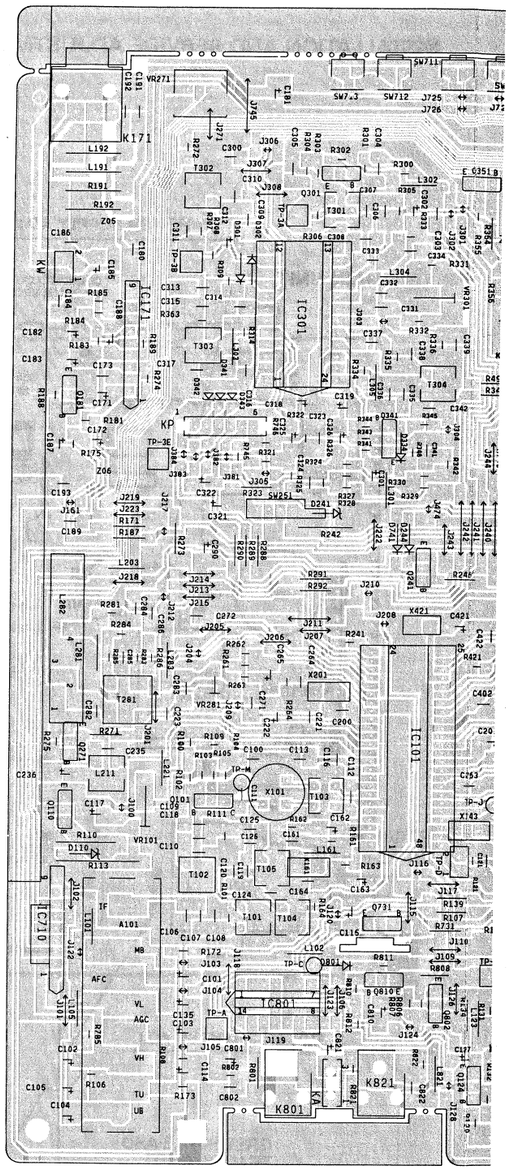




Swing the Deflection Yoke the ⬅ direction, Red/Blue lines on the screen move the ⬅ direction.
Swing the Deflection Yoke the ⇦ direction, Red/Blue lines on the screen move the ⇦ direction.
To fasten the Deflection Yoke, Insert and fix the D.Y. spacer.

16

MAIN BOARD (CIRCUIT SIDE)



Chassisplatte
Chassis board
Piastra chassis

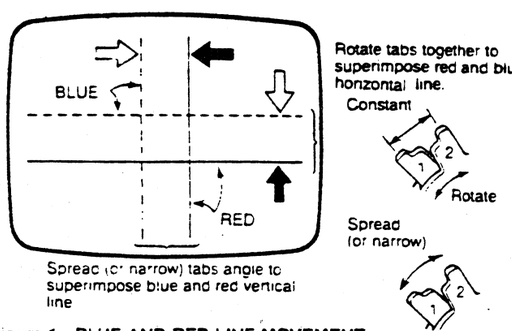

BLUE
RED
Rotate tabs together to superimpose red and blue horizontal line.
Constant
Rotate
Spread (or narrow)
Spread (or narrow) tabs angle to superimpose blue and red vertical line

Figure 1 - BLUE AND RED LINE MOVEMENT

17

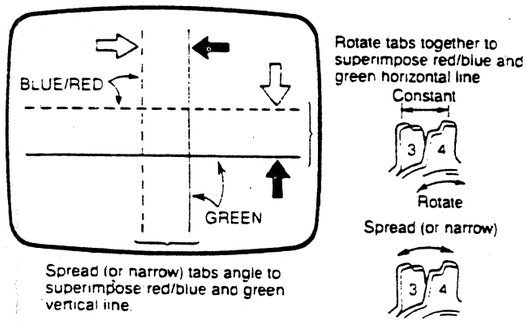
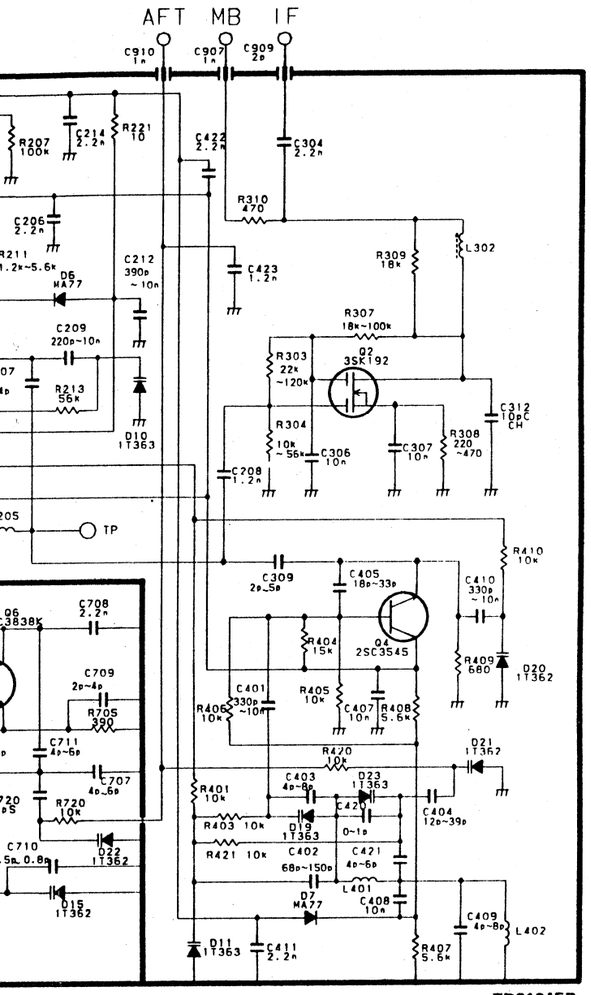

BLUE/RED
GREEN
Rotate tabs together to superimpose red/blue and green horizontal line
Constant
Rotate
Spread (or narrow)
Spread (or narrow) tabs angle to superimpose red/blue and green vertical line.

Figure 2 - BLUE/RED AND GREEN LINE MOVEMENT

18

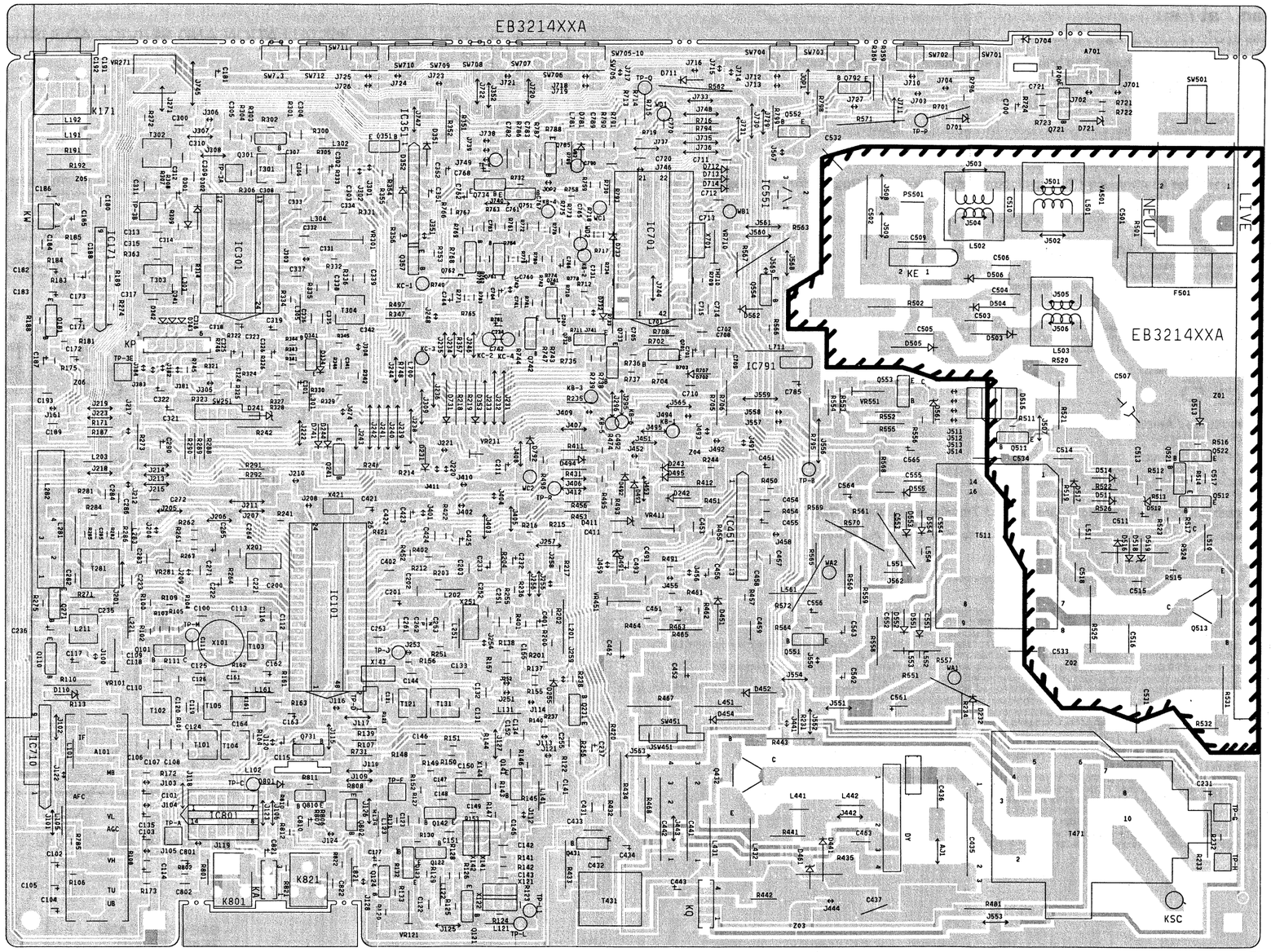


TD0124EB

3. MA366 . MA371
. 1SV223

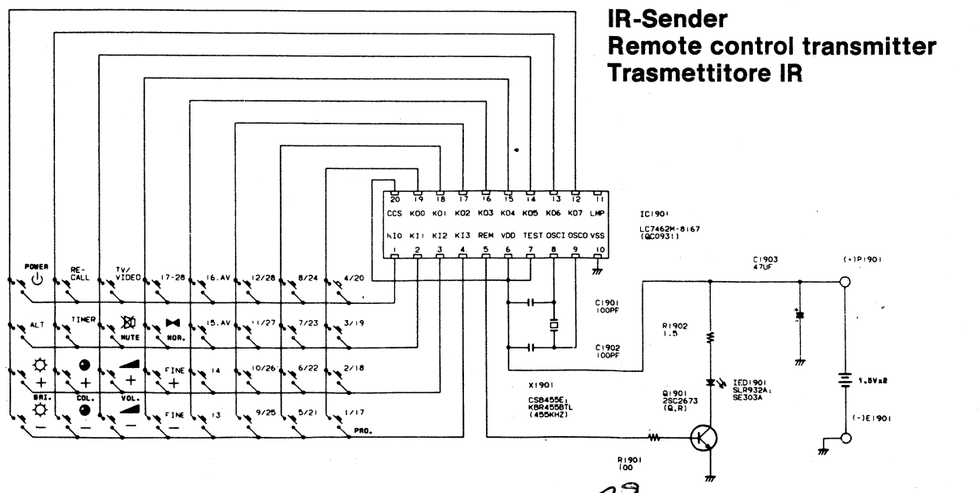
7. 1SS318

MAIN BOARD (CIRCUIT SIDE)

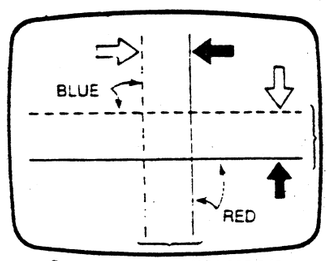


EB3214XXA E2HA (F)

Chassisplatte
Chassis board
Piastra chassis



IR-Sender
Remote control transmitter
Trasmettitore IR



Rotate tabs together to superimpose red and blue horizontal line.

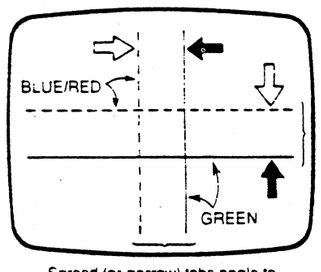
Constant

Rotate

Spread (or narrow)

Spread (or narrow) tabs angle to superimpose blue and red vertical line

Figure 1 - BLUE AND RED LINE MOVEMENT



Rotate tabs together to superimpose red/blue and green horizontal line

Constant

Rotate

Spread (or narrow)

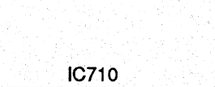
Spread (or narrow) tabs angle to superimpose red/blue and green vertical line.

Figure 2 - BLUE/RED AND GREEN LINE MOVEMENT

IC701

ON-SCREEN BLANKING OUTPUT	1	OUT (0.1V)	Vcc (5V)	42	+5 volts Supply
ON-SCREEN (NOT USED) DISPLAY OUTPUT	2	B	OSC2 (0.4V)	41	ON-SCREEN DISPLAY OSCILLATOR(5MHZ)
ON-SCREEN BLANKING OUTPUT	3	G (0.03V)	OSC1 (0.5V)	40	
	4	R	Hsync (4.5V)	39	ON-SCREEN DISPLAY(ACTIVE:LOW) HORIZONTAL SYNCHRONISATION PULSE.
TV/AV MODE OUTPUT (H:TV L:AV MODE)	5	P4 (5V)	Vsync (5.4V)	38	ON-SCREEN DISPLAY(ACTIVE:LOW) VERTICAL SYNCHRONISATION PULSE.
	6	P62 (5.4V)	P21	37	TEXT CONTROL (DATA OUTPUT)
RESET INPUT (ACTIVE:LOW)	7	RESET (5.4V)	P20	36	TEXT CONTROL (CLOCK OUTPUT)
AFT SIGNAL INPUT (NOT USED)	8	P51 (1.5V)	X OUT (2.4V)	35	SYSTEM CLOCK OSCILLATOR (4MHZ)
TIME BASE INPUT	9	P50 (4.4V)	X IN (2.3V)	34	
VOLUME CONTROL OUTPUT(ACTIVE:HIGH)	10	VDP0 (0.2V)	P61 (2.9V)	33	SKEW OUT PUT (H:OFF,L:ON)
COLOUR CONTROL OUTPUT(ACTIVE:HIGH)	11	VDP1 (4.7V)	P12 (2V)	32	BAND OUTPUT
BRIGHTNESS CONTROL OUTPUT(ACTIVE:HIGH)	12	VDP2 (4.4V)	P11 (0V)	31	
CONTRAST CONTROL OUTPUT(ACTIVE:HIGH)	13	VDP3 (10.3V)	P10 (5.5V)	30	
REMOTE CONTROL INPUT(ACTIVE:LOW)	14	P53 (5.4V)	P03 (0V)	29	KEY SCAN & SYSTEM CHANGE OUTPUT
OVER LOAD DETECT (L:WRONG)	15	P60 (5.4V)	P02 (0V)	28	
AFT ON/OFF (H:OFF, L:ON)	16	P70 (0V)	P01 (0V)	27	KEY SCAN OUTPUT (ACTIVE:LOW)
POWER ON/OFF (H:OFF, L:ON)	17	P71 (0V)	P00 (0V)	26	
	18	P72 (0V)	P33 (5.4V)	25	KEY SCAN INPUT (ACTIVE:LOW)
GND	19	TEST (0V)	P32 (0.6V)	24	
TUNING VOLTAGE OUTPUT	20	D/A (4V)	P31 (5.4V)	23	
GND	21	Vss (0V)	P30 (5.4V)	22	

IC710



Q701	
	VOLT.
B	0V
C	5.4V
E	0V

Q721	
	VOLT.
B	4.6V
C	5.2V
E	5.3V

Q731	
	VOLT.
B	0.03V
C	7V
E	0V

Q732	
	VOLT.
B	0.7V
C	0.06V
E	0V

Q733	
	VOLT.
B	0.7V
C	0.03V
E	0V

Q741	
	VOLT.
B	0.15V
C	0.1V
E	0.9V

Q742	
	VOLT.
B	0.17V
C	12V
E	12V

Q751	
	VOLT.
B	0.03V
C	7.2V
E	0V

Q785	
	VOLT.
B	0.5V
C	4.6V
E	0V

Q792	
	VOLT.
B	0V
C	11V
E	0V

IC171
1. 11.5V
2. 5V
3. 0V
4. 0.1V
5. 7V
6. 7.4V
7. –
8. 7.5V
9. 15V

MAIN PCB ASSY E3BC
UE2450

Q511	
	VOLT.
B	10V
C	–0.8V
E	10.8V

Q512		
	VOLT.	WAVEFORM
B	–2.7V	1.1VP-P
C	–1.5V	1.5VP-P
E	0V	-----

Q513		
	VOLT.	WAVEFORM
B	–1.5V	5VP-P
C	280V	560VP-P
E	0V	-----

Q551	
	VOLT.
B	23.5V
C	24V
E	24V

Q552	
	VOLT.
B	0.7V
C	0.1V
E	0V

Q553	
	VOLT.
B	7V
C	40V
E	6.5V

Q110	
	VOLT.
B	10V
C	12V
E	9V

Q101	
	VOLT.
B	1.2V
C	0.4V
E	4.2V

SERVICE PRECAUTION:
THE AREA ENCLOSED BY THIS LINE (▰▰) IS DIRECTLY CONNECTED WITH AC MAINS VOLTAGE. WHEN SERVICING THE AREA, CONNECT AN ISOLATING TRANSFORMER BETWEEN TV RECEIVER AND AC LINE TO ELIMINATE HAZARD OF ELECTRIC SHOCK.

Schaltbild / Circuit diagram / Schema elettrico

PAL-Version

PRODUCT SAFETY NOTICE

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A COMPONENT REPLACEMENT IS MADE IN ANY AREA OF A RECEIVER COMPONENTS INDICATED BY A MARK ⚠ IN THIS CIRCUIT DIAGRAM SHOW COMPONENTS WHOSE VALUE HAVE SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS SPECIFIED ON THE PARTS LIST OF SERVICE MANUAL BE USED FOR COMPONENTS REPLACEMENT POINTED OUT BY THE MARK.

CIRCUIT DIAGRAM NOTES:

1. ALL RESISTANCE VALUES ARE IN OHMS, K = 1,000, M = 1,000,000.
2. ALL RESISTANCE RATED WATTAGES ARE 1/4W UNLESS OTHERWISE NOTED.
3. EXCEPTING ELECTROLYTIC CAPACITORS, ALL CAPACITANCE VALUES OF LESS THAN I ARE EXPRESSED IN UF, AND MORE THAN I ARE IN PF. ELECTROLYTIC CAPACITANCE VALUES ARE IN UF.
4. ALL CAPACITANCE RATED VOLTAGES ARE 50V UNLESS OTHERWISE NOTED.
5. ALL INDUCTANCE VALUES ARE IN UH.
6. VOLTAGE READINGS TAKEN WITH A "VTVM" ARE FROM POINT INDICATED TO CHASSIS GROUND. VOLTAGE READINGS TAKEN BY USING A COLOUR BAR SIGNAL ARE WITH ALL CONTROLS AT NORMAL AND AFC SWITCH IN "OFF" POSITION. SOME VOLTAGES MAY VARY WITH SIGNAL STRENGTH.
7. WAVEFORMS WERE TAKEN WITH COLOUR BAR SIGNAL AND CONTROLS ADJUSTED FOR NORMAL PICTURE. WAVEFORMS WERE TAKEN BY USING A WIDE BAND OSCILLOSCOPE AND A LOW CAPACITY PROBE.
8. VOLTAGE AND WAVEFORM VALUES OF TRANSISTORS IN THE AREA ENCLOSED BY LINE (– –) ARE MEASURED TO BASE THE ELECTRIC POTENTIAL AT PIN 3 OF T311.
9. THIS CIRCUIT DIAGRAM COVERS A BASIC OR REPRESENTATIVE CHASSIS ONLY. THERE MAY BE SOME COMPONENTS OR PARTIAL CIRCUIT DIFFERENCES BETWEEN THE ACTUAL CHASSIS AND THE CIRCUIT DIAGRAM.
10. EXPRESSION OF CAPACITANCE AND RESISTANCE IN CIRCUIT DIAGRAM.

CAPACITANCE (Example)
1000 C M 2200 D
- Characteristic
- Capacitance value (2200pF)
- Allowable error (±20%) — J, K, M
- Kind (Ceramic) — T, A, E, U, D
- Rated voltage (1000V) — C, K, B, F, M, N, Z

RESISTANCE (Example)
1/2 N J 1/2
- Resistance value (1.2Ω)
- Allowable error (±5%)
- Kind (Metalized carbon) — D, N, S, W, C
- Rated Wattage (1/2W)

Q641	
	VOLT.
B	0V
C	100V
E	0V

Q601		
	VOLT.	WAVEFORM
B	6.6V	4.2VP-P HORIZ.
C	104V	100VP-P HORIZ.
E	6.4V	

Q611		
	VOLT.	WAVEFORM
B	6.6V	4.2VP-P HORIZ.
C	103V	100VP-P HORIZ.
E	6.4V	

Q621		
	VOLT.	WAVEFORM
B	6.6V	3.7VP-P HORIZ.
C	100V	95VP-P HORIZ.
E	6.4V	

IC171

1	11.5V
2	5V
3	0V
4	0.1V
5	7V
6	7.4V
7	–
8	7.5V
9	15V

IC101

1	3.6V	5V	48
2	6V	5V	47
3	4.6V	4V	46
4	5.8V	5V	45
5	4V	5.4V	44
6	–	7.2V	43
7	4.8V	3.5V	42
8	4.8V	6.2V	41
9	6V	4.8V	40
10	7V	5.6V	39
11	9.3V	1.8V	38
12	6.7V	8.6V	37
13	9.2V	2.8V	36
14	5.7V	4.4V	35
15	7V	–	34
16	5.8V	7V	33
17	6.2V	4.8V	32
18	3.4V	0.4V	31
19	4.8V	7.4V	30
20	3.5V	5.8V	29
21	5.5V	5.2V	28
22	5.5V	0.8V	27
23	5.5V	0.6V	26
24	4.5V	7.7V	25

IC801

2.8V	1	14	12V
1.5V	2	13	0V
1.3V	3	12	12.5V
2V	4	11	2.6V
0.1V	5	10	2.8V
0.1V	6	9	0V
–	7	8	3.7V

IC451

9.2V	4.8V	4.8V	4.8V	0.5V	4.8V	4.6V	23.5V	1.9V	1.5V	–	15V	24V	
1	2	3	4	5	6	7	8	9	10	11	12	13	

6Vp-p Vert. | 1.5Vp-p Vert. | 43Vp-p Vert.

Q802	
	VOLT.
B	6.6V
C	12V
E	6V

Q810	
	VOLT.
B	0.06V
C	12.5V
E	0V

Q431		
	VOLT.	WAVEFORM
B	0.08V	2.1VP-P HORIZ.
C	19V	40VP-P HORIZ.
E	0V	

Q432		
	VOLT.	WAVEFORM
B	2.3V	1.4VP-P HORIZ.
C	80V	1000VP-P HORIZ.
E	2.4V	1.2VP-P HORIZ.

Q101	
	VOLT.
B	1.2V
C	0.4V
E	4.2V

Q124	
	VOLT.
B	2V
C	0V
E	2.8V

Q241		
	VOLT.	WAVEFORM
B	4.6V	8.5VP-P HORIZ.
C	1.2V	
E	5.3V	5.5VP-P HORIZ.

E IN CIRCUIT DIAGRAM.

- J ..... ±5%
- K ..... ±10%
- M ..... ±20%
- T, A, E, U, D ... Electrolytic
- C, K, B ..... Ceramic
- F ..... Mylar film
- M, N ..... Polypropylene
- Z ..... Metalized paper
- D ..... Carbon
- N ..... Metalized carbon
- S ..... Oxide metalized
- W ..... Wire wounding
- C ..... Solid

11. DIODE IS1555 MAY BE REPLACED WITH IS2473, IS2076 OR DS442 UNLESS OTHERWISE NOTED.
TRANSISTOR 2SC536 (E, F, G) MAY BE REPLACED WITH 2SC1740S (Q, R, S), 2SC1740 (Q, R, S), 2SC945A (Q, R, P) OR 2SC1815 (G, O, Y) UNLESS OTHERWISE NOTED.
TRANSISTOR 2SA608 (E, F) MAY BE REPLACED WITH 2SA933 (Q, R), 2SA564 (QA, RA) OR 2SA1015 (O, Y) UNLESS OTHERWISE NOTED.

TRANSISTOR, DIODE & INTEGRATED CIRCUIT TERMINAL GUIDE

C: COLLECTOR
B: BASE
E: EMITTER

A: ANODE
K: CATHODE

PARTICULAR PARTS SYMBOL

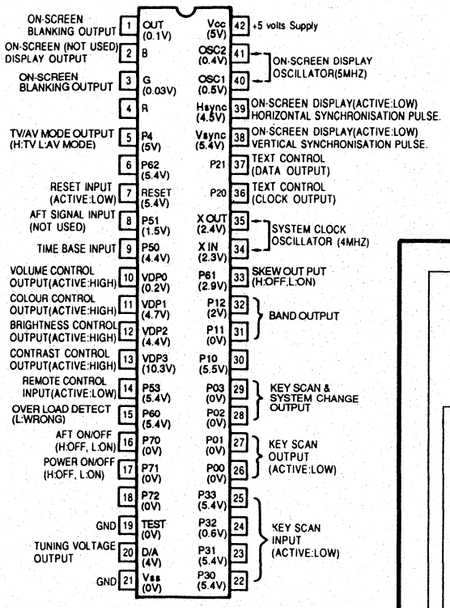
FUSIBLE RESISTOR

NON-POLE ELECTROLYTIC CAPACITOR

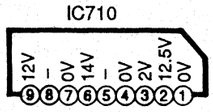
POSISTER

A 29.1

IC701


ON-SCREEN BLANKING OUTPUT 1 OUT (0.1V)
ON-SCREEN (NOT USED) DISPLAY OUTPUT 2 B
ON-SCREEN BLANKING OUTPUT 3 G (0.03V)
4 R
TV/AV MODE OUTPUT (H:TV L:AV MODE) 5 P4 (5V)
6 P62 (5.4V)
RESET INPUT (ACTIVE:LOW) 7 RESET (5.4V)
AFT SIGNAL INPUT (NOT USED) 8 P51 (1.5V)
TIME BASE INPUT 9 P50 (4.4V)
VOLUME CONTROL OUTPUT(ACTIVE:HIGH) 10 VDP0 (0.2V)
COLOUR CONTROL OUTPUT(ACTIVE:HIGH) 11 VDP1 (4.7V)
BRIGHTNESS CONTROL OUTPUT(ACTIVE:HIGH) 12 VDP2 (4.4V)
CONTRAST CONTROL OUTPUT(ACTIVE:HIGH) 13 VDP3 (10.3V)
REMOTE CONTROL INPUT(ACTIVE:LOW) 14 P53 (5.4V)
OVER LOAD DETECT (L:WRONG) 15 P60 (5.4V)
AFT ON/OFF (H:OFF, L:ON) 16 P70 (0V)
POWER ON/OFF (H:OFF, L:ON) 17 P71 (0V)
18 P72 (0V)
GND 19 TEST (0V)
TUNING VOLTAGE OUTPUT 20 D/A (4V)
GND 21 Vss (0V)
Vcc (5V) 42 +5 volts Supply
OSC2 (0.4V) 41
OSC1 (0.5V) 40 ON-SCREEN DISPLAY OSCILLATOR(5MHZ)
Hsync (4.5V) 39 ON-SCREEN DISPLAY(ACTIVE:LOW) HORIZONTAL SYNCHRONISATION PULSE.
Vsync (5.4V) 38 ON-SCREEN DISPLAY(ACTIVE:LOW) VERTICAL SYNCHRONISATION PULSE.
P21 37 TEXT CONTROL (DATA OUTPUT)
P20 36 TEXT CONTROL (CLOCK OUTPUT)
X OUT (2.4V) 35
X IN (2.3V) 34 SYSTEM CLOCK OSCILLATOR (4MHZ)
P61 (2.9V) 33 SKEW OUT PUT (H:OFF,L:ON)
P12 (2V) 32
P11 (0V) 31 BAND OUTPUT
P10 (5.5V) 30
P03 (0V) 29
P02 (0V) 28 KEY SCAN & SYSTEM CHANGE OUTPUT
P01 (0V) 27
P00 (0V) 26 KEY SCAN OUTPUT (ACTIVE:LOW)
P33 (5.4V) 25
P32 (0.6V) 24
P31 (5.4V) 23
P30 (5.4V) 22 KEY SCAN INPUT (ACTIVE:LOW)

IC710



Q701	
	VOLT.
B	0V
C	5.4V
E	0V

Q721	
	VOLT.
B	4.6V
C	5.2V
E	5.3V

Q731	
	VOLT.
B	0.03V
C	7V
E	0V

Q732	
	VOLT.
B	0.7V
C	0.06V
E	0V

Q733	
	VOLT.
B	0.7V
C	0.03V
E	0V

Q741	
	VOLT.
B	0.15V
C	0.1V
E	0.9V

Q742	
	VOLT.
B	0.17V
C	12V
E	0V

Q751	
	VOLT.
B	0.03V
C	7.2V
E	0V

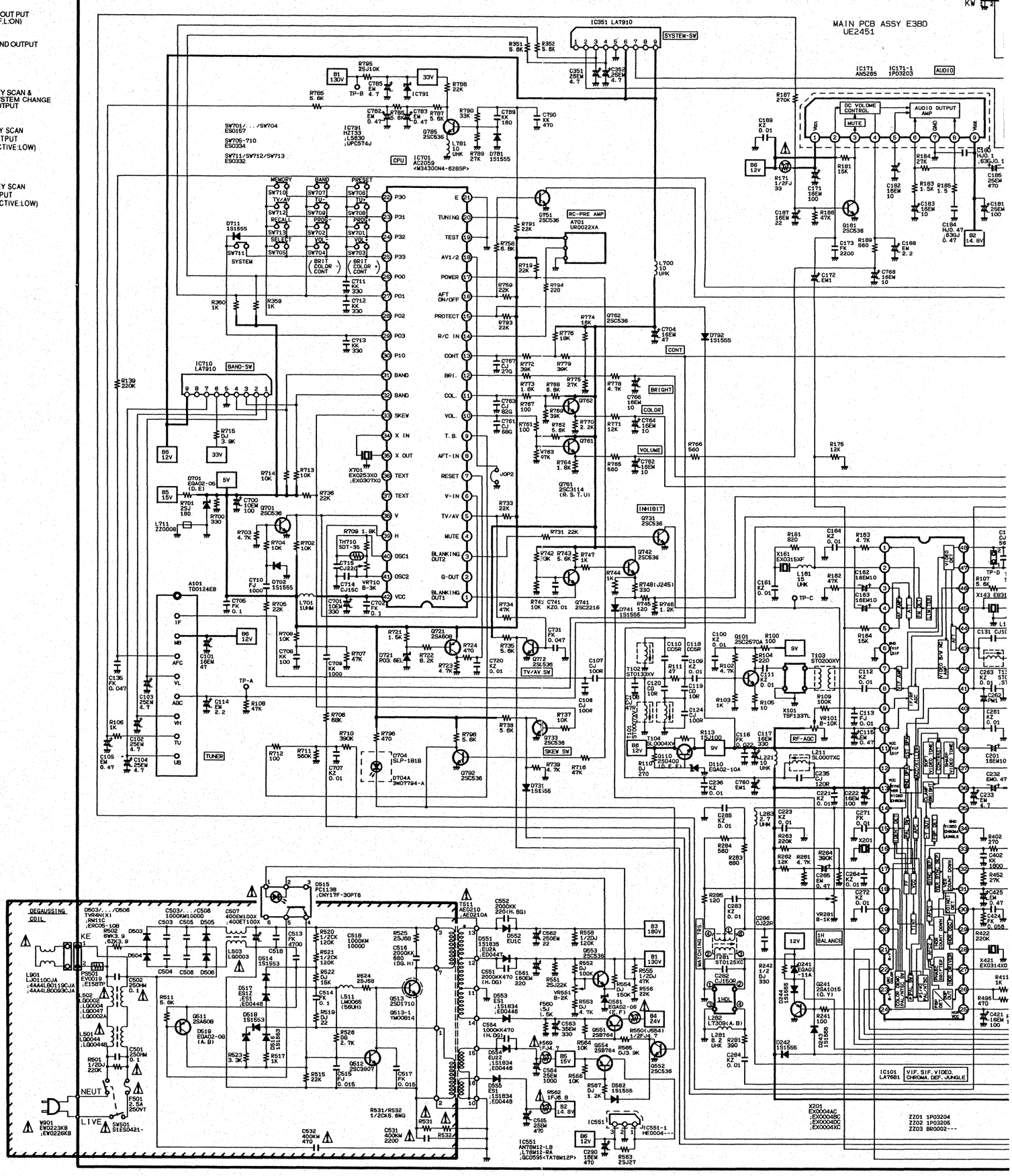
Q785	
	VOLT.
B	0.5V
C	4.6V
E	0V

Q792	
	VOLT.
B	0V
C	11V
E	0V

IC171

1	11.5V
2	5V
3	0V
4	0.1V
5	7V
6	7.4V
7	–
8	7.5V
9	15V

MAIN PCB ASSY E3BD
UE2451



SERVICE PRECAUTION:
THE AREA ENCLOSED BY THIS LINE (▰▰) IS DIRECTLY CONNECTED WITH AC MAINS VOLTAGE. WHEN SERVICING THE AREA, CONNECT AN ISOLATING TRANSFORMER BETWEEN TV RECEIVER AND AC LINE TO ELIMINATE HAZARD OF ELECTRIC SHOCK.

Q511	
	VOLT.
B	10V
C	-0.8V
E	10.8V

Q512		
	VOLT.	WAVEFORM
B	-2.7V	1.1VP-P
C	-1.5V	1.5VP-P
E	0V	

Q513		
	VOLT.	WAVEFORM
B	-1.5V	5VP-P
C	280V	56QVP-P
E	0V	

Q551	
	VOLT.
B	23.5V
C	24V
E	24V

Q552	
	VOLT.
B	0.7V
C	0.1V
E	0V

Q553	
	VOLT.
B	7V
C	40V
E	6.5V

Q110	
	VOLT.
B	10V
C	12V
E	9V

Q101	
	VOLT.
B	1.2V
C	0.4V
E	4.2V

Q124	
	VOL
B	2V
C	0V
E	2.8V

Schaltbild / Circuit diagram / Schema elettrico

PAL SECAM-Version

PRODUCT SAFETY NOTICE

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A COMPONENT REPLACEMENT IS MADE IN ANY AREA OF A RECEIVER COMPONENTS INDICATED BY A MARK ⚠ IN THIS CIRCUIT DIAGRAM SHOW COMPONENTS WHOSE VALUE HAVE SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS SPECIFIED ON THE PARTS LIST OF SERVICE MANUAL BE USED FOR COMPONENTS REPLACEMENT POINTED OUT BY THE MARK.

CIRCUIT DIAGRAM NOTES:

1. ALL RESISTANCE VALUES ARE IN OHMS, K = 1,000, M = 1,000,000.
2. ALL RESISTANCE RATED WATTAGES ARE 1/4W UNLESS OTHERWISE NOTED.
3. EXCEPTING ELECTROLYTIC CAPACITORS, ALL CAPACITANCE VALUES OF LESS THAN 1 ARE EXPRESSED IN UF, AND MORE THAN 1 ARE IN PF. ELECTROLYTIC CAPACITANCE VALUES ARE IN UF.
4. ALL CAPACITANCE RATED VOLTAGES ARE 50V UNLESS OTHERWISE NOTED.
5. ALL INDUCTANCE VALUES ARE IN UH.
6. VOLTAGE READINGS TAKEN WITH A "VTVM" ARE FROM POINT INDICATED TO CHASSIS GROUND. VOLTAGE READINGS TAKEN BY USING A COLOUR BAR SIGNAL ARE WITH ALL CONTROLS AT NORMAL AND AFC SWITCH IN "OFF" POSITION. SOME VOLTAGES MAY VARY WITH SIGNAL STRENGTH.
7. WAVEFORMS WERE TAKEN WITH COLOUR BAR SIGNAL AND CONTROLS ADJUSTED FOR NORMAL PICTURE. WAVEFORMS WERE TAKEN BY USING A WIDE BAND OSCILLOSCOPE AND A LOW CAPACITY PROBE.
8. VOLTAGE AND WAVEFORM VALUES OF TRANSISTORS IN THE AREA ENCLOSED BY LINE (- - -) ARE MEASURED TO BASE THE ELECTRIC POTENTIAL AT PIN 3 OF T311.
9. THIS CIRCUIT DIAGRAM COVERS A BASIC OR REPRESENTATIVE CHASSIS ONLY. THERE MAY BE SOME COMPONENTS OR PARTIAL CIRCUIT DIFFERENCES BETWEEN THE ACTUAL CHASSIS AND THE CIRCUIT DIAGRAM.
10. EXPRESSION OF CAPACITANCE AND RESISTANCE IN CIRCUIT DIAGRAM.

CAPACITANCE (Example)

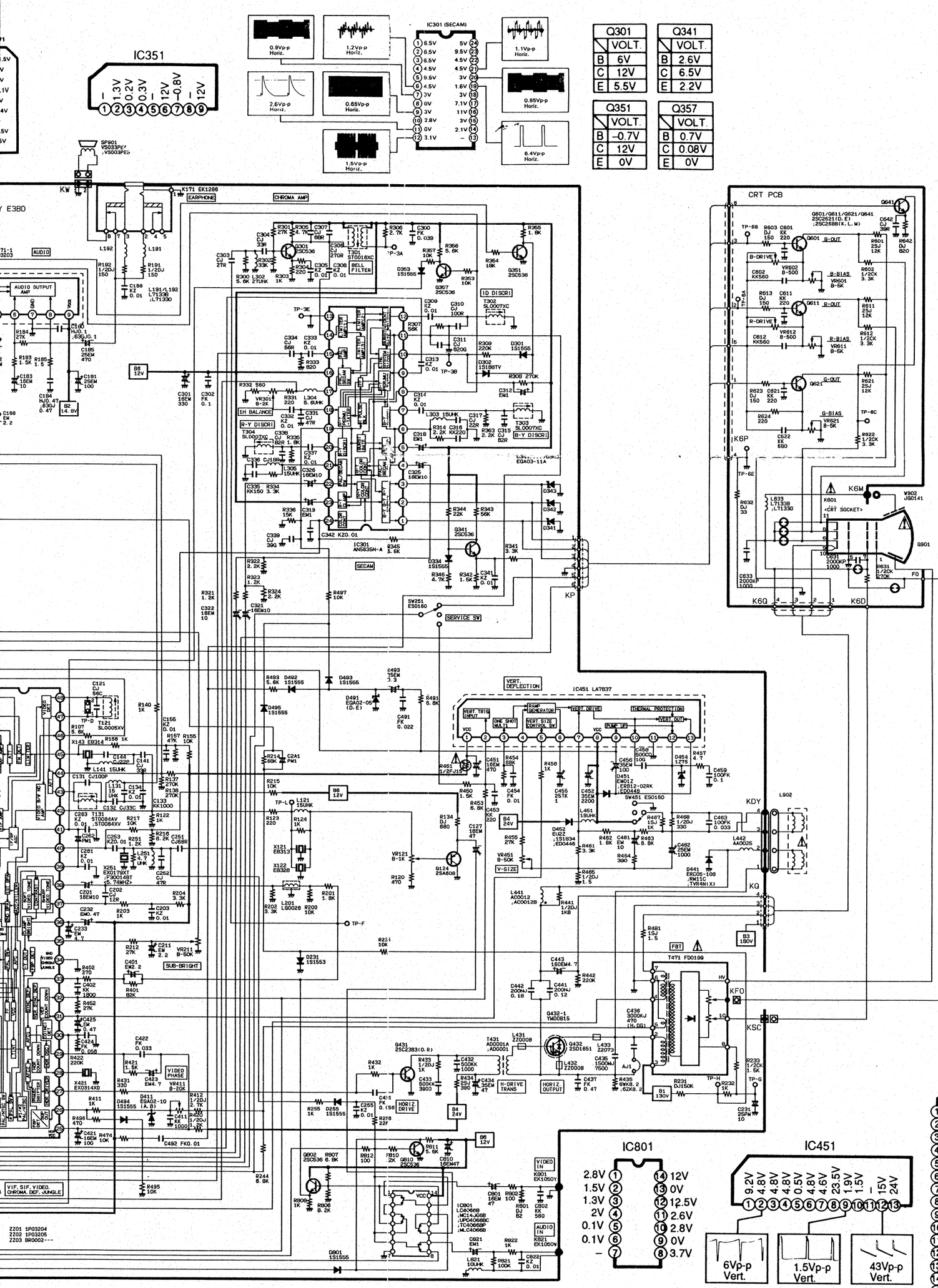
1000 C . M 2200 D

- Characteristic
  - J ..... ±5%
  - K ..... ±10%
  - M ..... ±20%
- Allowable error (±20%)
- Kind (Ceramic)
  - T, A, E, U, D Electrolytic
  - C, K, B .... Ceramic
  - F ..... Mylar film
  - M, N ..... Polypropyle
  - Z ..... Metalized pa
- Rated voltage (1000V)

RESISTANCE (Example)

1/2 N J 1/2

- Resistance value (1.2Ω)
- Allowable error (±5%)
- Kind (Metalized carbon)
  - D ..... Carbon
  - N ..... Metalized ca
  - S ..... Oxide metal
  - W ..... Wire wound
  - C ..... Solid
- Rated Wattage (1/2W)



Q101	
	VOLT.
B	1.2V
C	0.4V
E	4.2V

Q124	
	VOLT.
B	2V
C	0V
E	2.8V

Q241		
	VOLT.	WAVEFORM
B	4.6V	8.5VP-P HORIZ
C	1.2V	– – – – –
E	5.3V	5.0VP-P HORIZ

Q802	
	VOLT.
B	6.6V
C	12V
E	6V

Q810	
	VOLT.
B	0.06V
C	12.5V
E	0V

Q431		
	VOLT.	WAVEFORM
B	0.08V	2.1VP-P HORIZ
C	19V	40VP-P HORIZ
E	0V	– – – – –

Q432		
	VOLT.	WAVEFORM
B	2.3V	1.4VP-P HORIZ
C	80V	1000VP-P HORIZ
E	2.4V	1.2VP-P HORIZ

J . . . . . ±5%
K . . . . . ±10%
M . . . . . ±20%

T, A, E, U, D Electrolytic
C, K, B . . . . . Ceramic
F . . . . . Mylar film
M, N . . . . . Polypropylene
Z . . . . . Metalized paper

D . . . . . Carbon
N . . . . . Metalized carbon
S . . . . . Oxide metalized
W . . . . . Wire wounding
C . . . . . Solid

11. DIODE IS1555 MAY BE REPLACED WITH IS2473, IS2076 OR DS442 UNLESS OTHERWISE NOTED.
TRANSISTOR 2SC536 (E, F, G) MAY BE REPLACED WITH 2SC1740S (Q, R, S), 2SC1740 (Q, R, S), 2SC945A (Q, R, P) OR 2SC1815 (G, O, Y) UNLESS OTHERWISE NOTED.
TRANSISTOR 2SA608 (E, F) MAY BE REPLACED WITH 2SA933 (Q, R), 2SA564 (QA, RA) OR 2SA1015 (O, Y) UNLESS OTHERWISE NOTED.

TRANSISTOR, DIODE & INTEGRATED CIRCUIT TERMINAL GUIDE

C: COLLECTOR
B: BASE
E: EMITTER
A: ANODE
K: CATHODE

PARTICULAR PARTS SYMBOL

FUSIBLE RESISTOR
NON-POLE ELECTROLYTIC CAPACITOR
POSISTER

A 29.1